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PATENT APPLICATION
TRANSMITTAL

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Attorney Docket No. **P-3001-1/L&M (McKinley)**
First Inventor or Application Identifier **Martin David Hoyle**
Title **A COMPUTER INTERFACE METHOD AND**
Express Mail Label No. **EM119616830US**

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

1. ☐ Fee Transmittal Form (e.g., PTO/SB/17)
(Submit an original and a duplicate for fee processing)
2. ☐ Specification [Total Pages **48**]
(preferred arrangement set forth below)
- Descriptive title of the invention
- Cross References to Related Applications
- Statement Regarding Fed sponsored R & D
- Reference to Microfiche Appendix
- Background of the invention
- Brief Summary of the invention
- Brief Description of the Drawings (if filed)
- Detailed Description
- Claim(s)
- Abstract of the Disclosure
3. ☐ Drawing(s) (35 U.S.C. 113) [Total Sheets **14**]
4. Oath or Declaration [Total Pages **7**]
a. ☐ Newly executed (original or copy)
b. ☐ Copy from a prior application (37 C.F.R. § 1.63(d))
(for continuation/divisional with Box 16 completed)
i. ☐ DELETION OF INVENTOR(S)
Signed statement attached deleting inventor(s) named in the prior application, see 37 C.F.R. §§ 1.63(d)(2) and 1.33(b).

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5. ☐ Microfiche Computer Program (Appendix)
6. Nucleotide and/or Amino Acid Sequence Submission (if applicable, all necessary)
a. ☐ Computer Readable Copy
b. ☐ Paper Copy (identical to computer copy)
c. ☐ Statement verifying identity of above copies

ACCOMPANYING APPLICATION PARTS

7. ☐ Assignment Papers (cover sheet & document(s))
8. ☐ 37 C.F.R. § 3.73(b) Statement of Power of Attorney (when there is an assignee) ☐ Attorney
9. ☐ English Translation Document (if applicable)
10. ☐ Information Disclosure Statement (IDS)/PTO-1449 ☐ Copies of IDS Citations
11. ☐ Preliminary Amendment
12. ☐ Return Receipt Postcard (MPEP 503) (Should be specifically itemized)
13. ☐ Small Entity Statement(s) ☐ Statement filed in prior application, Status still proper and desired (PTO/SB/09-12)
14. ☐ Certified Copy of Priority Document(s) (if foreign priority is claimed)
15. ☐ Other:

16. If a CONTINUING APPLICATION, check appropriate box, and supply the requisite information below and in a preliminary amendment:

☐ Continuation ☐ Divisional ☐ Continuation-in-part (CIP) of prior application No. _____

Prior application information: Examiner _____ Group / Art Unit: _____

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17. CORRESPONDENCE ADDRESS

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Signature	<i>James D. Stevens</i>	Date	7/17/98

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FEE TRANSMITTAL

Patent fees are subject to annual revision on October 1.

These are the fees effective October 1, 1997.

Small Entity payments must be supported by a small entity statement,
otherwise large entity fees must be paid. See Forms PTO/SB/09-12.
See 37 C.F.R. §§ 1.27 and 1.28.TOTAL AMOUNT OF PAYMENT (\$) **730.00****Complete if Known**

Application Number	
Filing Date	
First Named Inventor	Martin David Hoyle
Examiner Name	
Group / Art Unit	
Attorney Docket No.	P3001-1/L&M (McKinley)

METHOD OF PAYMENT (check one)

- 1.
- ☒
- The Commissioner is hereby authorized to charge indicated fees and credit any over payments to:

Deposit
Account
Number
Deposit
Account
Name**12-0755****Learman & McCulloch**☒ Charge Any Additional
Fee Required Under
37 C.F.R. §§ 1.16 and 1.17☐ Charge the Issue Fee Set in
37 C.F.R. § 1.18 at the Mailing
of the Notice of Allowance

- 2.
- ☒
- Payment Enclosed:

☒ Check ☐ Money
Order ☐ Other**FEE CALCULATION****1. BASIC FILING FEE**

Large Entity Small Entity

Fee Code (\$)	Fee Code (\$)	Fee Description	Fee Paid
101 790	201 395	Utility filing fee	395
106 330	206 165	Design filing fee	
107 540	207 270	Plant filing fee	
108 790	208 395	Reissue filing fee	
114 150	214 75	Provisional filing fee	

SUBTOTAL (1) (\$) **395.00****2. EXTRA CLAIM FEES**

Total Claims	Extra Claims	Fee from below	Fee Paid
43	23	11	253
Independent Claims	5	2	82
Multiple Dependent			335

**or number previously paid, if greater; For Reissues, see below

Large Entity Small Entity

Fee Code (\$)	Fee Code (\$)	Fee Description
103 22	203 11	Claims in excess of 20
102 82	202 41	Independent claims in excess of 3
104 270	204 135	Multiple dependent claim, if not paid
109 82	209 41	** Reissue independent claims over original patent
110 22	210 11	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) (\$) **730.00****FEE CALCULATION (continued)****3. ADDITIONAL FEES**

Large Entity Small Entity

Fee Code (\$)	Fee Code (\$)	Fee Description	Fee Paid
105 130	205 65	Surcharge - late filing fee or oath	
127 50	227 25	Surcharge - late provisional filing fee or cover sheet.	
139 130	139 130	Non-English specification	
147 2,520	147 2,520	For filing a request for reexamination	
112 920*	112 920*	Requesting publication of SIR prior to Examiner action	
113 1,840*	113 1,840*	Requesting publication of SIR after Examiner action	
115 110	215 55	Extension for reply within first month	
116 400	216 200	Extension for reply within second month	
117 950	217 475	Extension for reply within third month	
118 1,510	218 755	Extension for reply within fourth month	
128 2,060	228 1,030	Extension for reply within fifth month	
119 310	219 155	Notice of Appeal	
120 310	220 155	Filing a brief in support of an appeal	
121 270	221 135	Request for oral hearing	
138 1,510	138 1,510	Petition to institute a public use proceeding	
140 110	240 55	Petition to revive - unavoidable	
141 1,320	241 660	Petition to revive - unintentional	
142 1,320	242 660	Utility issue fee (or reissue)	
143 450	243 225	Design issue fee	
144 670	244 335	Plant issue fee	
122 130	122 130	Petitions to the Commissioner	
123 50	123 50	Petitions related to provisional applications	
126 240	126 240	Submission of Information Disclosure Stmt	
581 40	581 40	Recording each patent assignment per property (times number of properties)	
146 790	246 395	Filing a submission after final rejection (37 CFR 1.129(a))	
149 790	249 395	For each additional invention to be examined (37 CFR 1.129(b))	

Other fee (specify) _____

Other fee (specify) _____

* Reduced by Basic Filing Fee Paid

SUBTOTAL (3) (\$) _____

SUBMITTED BYTyped or
Printed Name **James D. Stevens**Signature Date **7/17/98****Complete (if applicable)**Reg. Number **35,691**Deposit Account
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P-3001-1/L&M-McKinley

A COMPUTER INTERFACE METHOD AND
APPARATUS WITH TARGETED ADVERTISING

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ABSTRACT OF THE DISCLOSURE

10 A method and apparatus for providing an automatically upgradeable software
application that includes targeted advertising based upon demographics and user interaction
with the computer. The software application is a graphical user interface that includes a
display region used for banner advertising that is downloaded from time to time over a
network such as the Internet. The software application is accessible from a server via the
Internet and demographic information on the user is acquired by the server and used for
15 determining what banner advertising will be sent to the user. The software application
further targets the advertisements in response to normal user interaction, or use, of the
computer. Associated with each banner advertisement is a set of data that is used by the
software application in determining when a particular banner is to be displayed. This includes
the specification of certain programs that the user may have so that, when the user runs the
20 program (such as a spreadsheet program), an advertisement will be displayed that is relevant to
that program (such as an advertisement for a stock brokerage). This provides two-tiered, real-
time targeting of advertising - both demographically and reactively. The software application
includes programming that accesses the server on occasion to determine if one or more
components of the application need upgrading to a newer version. If so, the components are
25 downloaded and installed without requiring any input or action by the user.

A COMPUTER INTERFACE METHOD AND APPARATUS WITH TARGETED ADVERTISING

TECHNICAL FIELD

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This invention relates in general to user interfaces for accessing computer applications and information resources and, in particular, to user interfaces that provide advertising obtained over a global computer network such as the Internet.

BACKGROUND OF THE INVENTION

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The continuing expansion of the Internet and other private and semi-private networks has led to the now widespread practice of electronic distribution of software to end users, whether as freeware, shareware, or fully paid-up licensed software. Traditionally, freeware programs have generally been small, unsupported single-purpose programs that are of limited use. Since no income was derived from these programs, there was little incentive for the creators of this type of software to undertake major development efforts. More recently, however, a new type of free software has emerged which, while free to end users, does provide income to the creator of the software via advertising incorporated into the software. This is of benefit both to the end user and advertiser, as the end user obtains useful software at no cost and the advertiser gets advertising exposure for its products or services. One well known example of this type of arrangement is in push technology products, such as Pointcast™, which permits a user to receive and display broadcasted information over the Internet. Using this software, new advertising is periodically received along with various requested types of news information (e.g., financial, business, sports) and is stored locally on the user's computer for later retrieval and display by the program.

The new advertising medium provided by the Internet has a number of significant advantages for advertisers. First, the users of the software within which the advertising is placed have, on average, much more disposable income to spend on products and services than the average user of other traditional advertising media, such as television or print. Second, the advertising can, in some instances, be targeted in various ways, such as demographically or reactively. An example of the latter of these is in push technology where the user requests certain types of information and this request is used to select the type of advertisement sent to the user along with the requested content. Third, the advertising can not only include audio and video elements as well as simple visual elements, but can also be interactive. For example, by clicking on the advertisement, the user can be provided with additional information about the advertised products or services and can even be given the opportunity to purchase the products or services electronically.

One of the most common methods of advertising via the Internet is through the use of links (e.g., URLs) embedded within web pages. By using embedded links, the advertisements need not be located on the same server as the web pages themselves. When the web page is loaded or reloaded, the advertising server is accessed to obtain a new advertisement which is incorporated into the web page displayed on the user's screen. These advertisements are simple graphical images (such as animated gifs) that are retrieved from the advertising server along with an associated link to additional information about the advertised product or service. While this permits new advertising to be displayed each time a web page is loaded or refreshed, and while this allows geographically unlimited advertising, it at most permits targeting of the advertisement based upon the type of information contained in the web page. Moreover, access to a new advertisement is only available during the period of time that the client computer is connected to the Internet.

Currently-available computer programs that incorporate advertising into their user interface include the necessary programming built into the software itself. That is, the various

parameters relating to the presentation of the advertisement is pre-determined and programmed into the software. These parameters may include such things as where on the screen the advertisement is displayed, the display size, the duration of display, the number of times a particular advertisement is displayed, the conditions under which a particular advertisement is to be displayed, the type of action taken upon a user clicking on the advertisement, and so forth. One problem with these currently available programs is that these parameters can only be changed by replacement of the entire program with an updated, revised version, making it difficult to respond to desired changes in advertising approaches.

To provide demographically-targeted advertising, the advertiser or distributor of the advertising must obtain demographic data on its end users. Perhaps the most common way to acquire demographic data regarding users via the Internet is to request the information using a form written in html (HyperText Markup Language) and provided to the user over the World-Wide Web (WWW) using http (HyperText Transfer Protocol). This is sometimes done as a prerequisite to allowing the user access to information resources or download software from a particular web site. While authentication of demographic information obtained this way is difficult and rarely done, it has been found that end users typically provide accurate demographic data in return for free download access to software. Furthermore, studies have shown that while people are concerned about privacy issues and, in particular, do not wish to provide specific information that identifies them (such as their name, address, or Social Security number), they generally do not mind providing demographic information, nor do they mind monitoring of their computer usage as long as their usage is not associated with any specific information that could be used to identify them.

Various other arrangements have been suggested for obtaining and reporting information about an end user over a computer network such as the Internet. For example, U.S. Patent No. 5,724,521 to Dedrick discloses an electronic advertising system in which a user profile is created and transferred to a metering server where it is used along with other

end user profiles to charge advertiser's according to a consumer scale. The profile data is also used by the metering server to select advertisement titles that are sent to the end user for viewing at the request of the end user. When a user requests an advertisement, the metering server sends the advertisement to the end user, charges the advertiser, and provides the advertiser with profile data on that end user. The system can include client-side software which acquires and compiles information concerning the user's interaction with the advertising or other content provided by the metering server.

U.S. Patent No. 5,732,218 to Bland et al. discloses a system for gathering data concerning an end-user's access to information resources and reporting the data back to the servers that contain the information resources. Data gathering at the client is accomplished using an applet, plug-in, or other browser extension that acquires the data and then reports that data to those servers accessed by the client, either periodically or in response to a specific request by the servers. In this way, the servers being accessed for their information resources get reported back to them information concerning the end-user's use of that information. Limited demographic information (e.g., time zone, locale, client hardware) can be included in this reporting as well.

One of the disadvantages of prior art systems that acquire data regarding an end-user's computer usage is that they are generally limited to gathering information concerning only certain limited uses of the computer. For example, in Bland et al., the focus of the gathering and use of end-user data is in the user's interaction with web pages, whether over the Internet or otherwise. Similarly, in Dedrick, the compilation of data is directed to interaction between the end-user and the advertising or other content provided by the metering server itself. By limiting the reported data in this manner, it is difficult to develop accurate profiles for the individual users that are useful in targeting the advertising.

U.S. Patent No. 5,347,632 to Filepp et al. discloses a reception system in which both user demographics and individual system usage information can be used to target advertising. However, this information is used to select which advertisements are to be placed into an advertisement queue from which advertisements are then accessed, apparently in the order in which they were placed in the queue. Thus, this system permits targeting of advertising generally, but does not provide real time targeting of advertising based upon user actions.

Except as may be explicitly indicated otherwise, the following definitions shall apply:

computer – An apparatus having a processing device that is capable of executing instructions.

computer usage information - Data concerning a person's use of a computer, including such things as what programs they run, what information resources they access, what time of day or days of the week they use the computer, and so forth.

data set - A group of data items; for example, links, keywords, or entries in an address book.

display object - Data capable of display by a computer, including graphical images as well as multimedia presentations or other display data that includes audio in addition to visually-perceived data.

graphical image - Visually-perceived data stored in a graphic format (e.g., jpeg, gif, bmp, tiff, pcx, etc.), including electronically-reproduced photographs, graphics, animations, icons, and textual messages.

information resource - A source of information stored on a server or other computer that is accessible to other computers over a network.

keyword - A textual data item used in locating related sources of information

link - A data item that identifies the location or address of a program or information resource. A URL is a link, as is a path and filename of an information resource.

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non-volatile data storage device - A memory device that retains computer-readable data or programming code in the absence of externally-supplied power, including such things as a hard disk or a floppy disk, a compact disk read-only memory (CDROM), digital versatile disk (DVD), magneto-optical disk, and so forth.

10

program component - A set of instructions stored in a file in computer-readable format, whether as object code or source code, and whether written in a compiled language, in byte code (such as Java™), or in a scripting or other interpreted language.

15

program module - One or more related program components.

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program - One or more related program modules.

reactively - in response to some type of user input, such as a mouse click on a particular user application or on a link to an information resource

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server - A computer on a network that answers requests for information.

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software application - A program and associated libraries and other files; for example, a word processing application, a spreadsheet application, or a personal information management application.

SUMMARY OF THE INVENTION

In accordance with one aspect of the present invention there is provided an apparatus for use by a computer to provide a user of the computer with access to information resources via the Internet or otherwise. The apparatus comprises a non-volatile data storage device with first and second program modules stored on the non-volatile storage device. The first program module is operable upon execution to display a graphical user interface comprising a window separated into a number of regions, with a first one of the regions including a number of user-selectable items, at least some of which are each associated with a different data set. The data sets are each representative of a different category of information (e.g., financial, news, sports, etc.) and each of the data sets comprise a number of user-selectable links to different information resources. For example, the data sets can be groups of related URLs, whereby the information resources comprise web pages accessible via the Internet. A second one of the regions comprises an information display region which can display such things as banner advertisements. The second program module is operable upon execution to select informational data to be displayed in the information display region. The first program module is operable in response to selection of a first one of the links to provide the user with access to its associated information resource and to notify the second program module of the selection of that first link. The second program module is operable in response to notifications from the first program module to select the informational data to be displayed from among a larger amount of informational data, and the second program module is further operable to store statistical data regarding the display of the selected informational data. This permits targeting of banner advertisements based upon the type of link (financial, news, sports, etc.) selected by the user.

In accordance with another aspect of the invention, there is provided a computer-readable memory for use by a computer to provide a user of the computer with an automatically-upgradeable software application. The computer readable memory comprises a

non-volatile data storage device and a program that is separated into a plurality of program modules that are stored on the non-volatile data storage device. Some or all of the program modules have at least one version identifier associated with them. One of the program modules is operable upon execution to access the stored version identifier(s) and at least one updated version identifier from a server via a global public network such as the Internet. These updated version identifier(s) represent updated program modules accessible from a server via the public network. This program module is further operable to download one or more updated program modules when the stored version identifier and the updated version identifier are different, with the updated program module(s) replacing one or more of the program modules. In this way, software upgrades can be carried out automatically without any user action required. Also, upgrading can be accomplished without having to download and install the entire software package.

In accordance with another aspect of the invention, a method is provided for supplying demographically-targeted advertising to a computer user. The method includes the steps of:

providing a server that is accessible via a computer network such as the Internet,

permitting a computer user to access the server via the computer network,

acquiring demographic information about the user (which includes information specifically provided by the user in response to a request for the demographic information),

providing the user with download access to computer software that, when run on a computer, displays advertising content, records computer usage information concerning the user's utilization of the computer, and periodically requests additional advertising content,

transferring a copy of the software to the computer in response to a download request by the user,

providing a unique identifier to the computer, with the identifier uniquely identifying information sent over the computer network from the computer to the server,

associating the unique identifier with demographic information in a database,

selecting advertising content for transfer to the computer in accordance with the demographic information associated with the unique identifier,

transferring the advertising content from the server to the computer for display by the program,

periodically acquiring the unique identifier and the computer usage information recorded by the software from the computer via the computer network, and

associating the computer usage information with the demographic information using the unique identifier.

In accordance with yet another aspect of the invention, there is provided a computer-readable memory for use by a computer to provide a user of the computer with targeted information. The memory comprises a non-volatile data storage device and a program stored thereon. The program is operable upon execution to display a window containing an information display region. The program is also operable to select and display informational data (such as a banner advertisement) in the information display region. The informational data comprises a plurality of display objects with at least some of the display objects each having a data set associated therewith. The data sets each include one or more of the following data items:

a category identifier that indicates a category of information to which the associated display object relates, wherein the program is operable in response to receiving user input relating to one of the categories of information to display in the information display region a display object having an associated category identifier that relates to that one category of information;

a software application identifier that identifies a software application that may be accessible to the user via the computer, wherein the program is operable in response to user selection of the software application to display in the information display region a display object associated with the selected software application.

These identifiers permit real time, reactively-targeted advertising since the program can respond to user interaction with the computer to determine whether the input relates to a particular category of information and, if so, can select advertising related to that category of information.

BRIEF DESCRIPTION OF THE DRAWINGS

A preferred exemplary embodiment of the present invention will hereinafter be described in conjunction with the appended drawings, wherein like designations denote like elements, and:

Figure 1 is block diagram of a first embodiment of the invention depicting a client software application comprising two program modules located on a computer connected to a server by way of the Internet;

Figure 2 is a block diagram of second embodiment that is a modified form of the that shown in Fig. 1;

5 Figure 3 is a block diagram depicting further details regarding use of the server shown in Fig. 1;

Figure 4 is a block diagram of a third embodiment of the invention depicting a client software application broken into a number of modules including a builder module responsible for upgrading and addition of any of the program modules;

Figure 5 is an exemplary view of the graphical user interface (GUI) generated by the client software application of Fig. 4;

Figure 5a is an exemplary view of a bookmark category window generated by the client software application of Fig. 4;

Figure 6 is block diagram that provides additional detail regarding the client software application depicted in Fig. 4;

20 Figure 7 depicts the structure of the banner database used by the client software application of Fig. 4;

Figure 8 depicts a method for providing access to the client software application and for obtaining and utilizing demographic information regarding users of the software application;

25

Figure 9 is a flow chart of the portion of the client software application of Fig. 4 that handles user login as well as acquisition of demographic information for new users of the application;

5 Figure 10 is a flow chart depicting an overview of the core operation of the client software application of Fig. 4;

Figure 11 is a flow chart of the processing of user input that is carried out by the client software application of Fig. 4;

Figure 12 is a flow chart of the processing of key events that is carried out by the client software application of Fig. 4;

Figure 13 is a flow chart of the process used by the builder module of Fig. 4 to upgrade different program modules or components used in the client software application; and

Figure 14 is a flow chart of a alternative process that can be used by the builder module of Fig. 4 to upgrade program modules or components used in the client software application.

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DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring first to Fig. 1, there is shown an overview of a client software application 10 comprising a graphical user interface (GUI) program module 12 and an advertising and data management (ADM) program module 14. Working together, these program modules act as a single software application that provides the computer user with a fully integrated interface to the other software applications loaded on the user's computer 18, as well as to information resources located on a private or public network, such as the Internet 20. Client application

10 may also include other executables, support files, and libraries that are used by program modules 12 and 14. In general, GUI module 12 contains the basic programming necessary to provide a user interface to the computer's software applications and operating system (e.g., Windows98 or WindowsNT), while ADM module 14 provides the basic management of the display and refreshing of advertising as well as the acquisition and reporting of computer usage information to an advertising and data management (ADM) server 22 via the Internet 20.

Computer 18 is a conventional personal computer, such as one that utilizes an Intel™ Pentium™ microprocessor. As is common, computer 18 includes RAM, a hard disk drive, a floppy drive, a CD-ROM or DVD drive, a mouse or other serial input device, a keyboard (all not shown), as well as a monitor 26. Computer 18 also includes a network adapter card through which it accesses the Internet. Alternatively, it can include a modem for accessing the Internet via a standard telephone line. As will be discussed below, client software application 10 is initially stored on a computer-readable memory (such as a hard drive) at server 22 and a copy is then downloaded and stored on the hard drive of computer 18 in response to a download request by the user.

As will be discussed in greater detail below in connection with Figs. 5 and 6, GUI module 12 generates an application window 24 that is displayed on the computer monitor 26. This window is separated into a number of regions, one of which is a banner region 28 for advertisements or other messages processed by ADM module 14. The advertisements displayed in banner region 28 are display objects such as graphical images that are stored on the computer's hard drive or in other non-volatile memory as a file or multiple files which are collectively represented in Fig. 1 as banner storage 30. They are accessed as needed by ADM module 14 and displayed in banner region 28. Upon ADM module 14 determining that new advertising is needed, it accesses the Internet via an existing TCP/IP connection 32 and downloads new banners from ADM server 22. Periodically, computer usage information is sent to ADM server 22 for use in profiling the end user and better targeting future advertising

to the end user. This computer usage information is stored on the end user's computer 18 in user data storage 34, which again can be the computer's hard drive or other non-volatile storage.

5 By separating out the advertising and end-user data management functions and providing them as a separate program, these functions can be changed easily by replacing the ADM module 14 without the necessity of downloading and installing an entire new version of the software. This update capability can be programmed into GUI module 12 (or, possibly, into ADM module 14) so that it periodically checks with server 22 for an updated ADM module 14 and, if found, downloads the new program and installs it as necessary. This can be
10 done automatically without the client software application requiring any user input, if desired.

ADM module 14 can be downloaded as object code, in which case it can be executed as is and can be started by the GUI program 12 each time that program is run. Optionally,
15 ADM module 14 can be written in byte code, such as Java™, or even in a suitable scripting or interpreted language. If desired, the execution engine needed for these latter types of programming can be provided originally as a part of the total software application 10. Alternatively, existing execution engines, such as those found in Java™ and JavaScript™-enabled browsers, can be used to execute ADM module 14 upon call by GUI module 12.
20 Moreover, if written in one of these latter programming languages, GUI module 12 or ADM module 14 can initiate operation of the browser (if not already running) and can direct the browser to ADM server 22 in which case the new version of ADM module 14 can be automatically downloaded and run by the browser.

25 Although ADM module 14 is shown in Fig. 1 as handling storage of the computer usage information and banner advertising, as well as display of the advertising and reporting of the computer usage information, it will be appreciated that most of these functions can be handled by GUI module 12, with ADM module 14 simply providing the basic logic and rules

which govern the display and reporting functions. This is shown in Fig. 2. In this embodiment, GUI module 36 still reports events to ADM module 38 which, as in the system of Fig. 1, determines what action is to be taken. However, it is GUI module 36 that actually does the work, including accessing or storing data in banner storage 30 or user data storage 34, reporting computer usage information to ADM server 22, accessing new banner advertising from server 22 and, when available, downloading a new ADM module 38. One advantage of this separation of functions between GUI module 36 and ADM module 38 is that it permits ADM module 38 to be written as a streamlined program module that occupies a minimum amount of storage space so that the basic logic governing advertising processing can be easily and quickly upgraded by downloading a new ADM module 38.

Referring now to Fig. 3, ADM server 22 is accessible via the Internet by any of a number of remotely located client computers 40 on which client software application 10 is installed. This can include client computers that are connected directly to the Internet, as well as computers connected via private or other types of networks, such as a LAN 42. ADM server 22 has associated with it an Advertisement Database 44 and a User/Demographics Database 46. Ad Database 44 stores the banner advertising that is provided to the client computers 40 both initially when client application 10 is installed and thereafter periodically as the advertising needs to be replaced. As will be discussed in greater detail below, each advertisement is assigned to one of three priority levels (general, medium, or high) that are used in reactively targeting the banner advertisements. These assignments of the advertisements are stored along with the advertisements themselves in Ad Database 44. Periodically, new advertising can be added to Ad Database 44. Preferably, this is accomplished via the Internet with the new advertising being obtained from one or more Advertising Servers 50, which may be run by an advertising distribution organization or may simply be computers operated by the individual advertisers themselves.

User Database 46 stores the demographic information used in targeting the advertising downloaded to the individual client computers 40. As will be described below, when a user first accesses client application 10 for the purposes of downloading and installing the software, demographic data is obtained on the user and that information is then used to determine what advertising will be provided to that user. Whenever new advertising is required for a particular user, the relevant information from User Database 46 will be used to determine which advertisements should be downloaded to that user's computer.

In addition to advertising selection and distribution, ADM server 22 also handles the distribution of upgrades to client software application 10. In general, the upgrading process involves communication between ADM server 22 and the client computers 40 to determine what program modules are installed at the client computer and to compare those modules to the latest set 48 maintained at ADM server 22. As will be described in connection with Figs. 4 and 13, this is preferably accomplished using a "blueprint" that contains an identifier (filename and version number) of each of the program modules used by client software application 10. Once it is determined that one or more program modules need to be updated, they are accessed at ADM server 22 and downloaded to the requesting client computer 40 and installed.

Turning now to Fig. 4, there is shown a third embodiment of the client software application. In this embodiment, the software application can have the same functionality of the first two embodiments, but is separated into a number of program modules that interact to provide this functionality. In particular, it includes a GUI module 52 and ADM module 54 as in the first two embodiments, but further includes a notes module 56, I/O module 58, login module 60, PDA module 62, builder module 64, and auxiliary module 66. Some of these additional modules, such as the notes module 56, provide added functionality not included in the modules of the Fig. 1 and 2 embodiments. Other of these modules, such as I/O module 58, perform functions that were incorporated into the GUI and/or ADM modules of Figs. 1 and 2.

Before describing the various modules in detail, reference is made to Fig. 5 which depicts a Windows™ version of the user interface provided by GUI module 52. The user interface comprises application window 24 separated into a number of regions. These regions include a pull-down menu 70, a set (toolbar) of menu icons 72, a URL text field 74, a toolbar containing application icons 76, a banner advertising region 78, and a toolbar containing bookmark category icons 80. While some of these regions provide unique commands and functions that will be described below, the programming used to generate the display in these regions and to enable interactivity with the items displayed within these regions is well within the level of skill in the art. Pull-down menu 70 contains the basic commands available to the user, including launching applications, accessing basic editing commands, changing the display of the user interface, adding and removing application and bookmark category icons, changing window views, and obtaining help. Menu icons 72 contain a number of icons that permit quick access to some of the more common commands contained in menu 70. URL field 74 is a conventional drop-down input box that can be used for entering URLs or path and file names of locally-stored web pages. Once a user has entered a web page location into this field and pressed Enter, GUI module 52 initiates operation of the user's default browser and directs it to access and display the specified web page. Banner advertising region 78 is an information display region in which is displayed graphical images comprising advertising stored locally on the computer. These advertisements are replaced in response to various events including, in particular, user interaction with the computer. Application icons 76 provide single-click initiation of any programs accessible by the user's computer. When client software application 10 is first installed, it initially builds this toolbar using the shortcuts existing on the computer's Windows™ desktop. Thereafter, the user can customize this toolbar, either by dragging icons onto or off of the toolbar, or via a suitable command available under the "Tools" menu item. The client software application can be programmed to automatically add or remove icons from this list when they are added or removed from the Windows™ desktop. Furthermore, the icons can be automatically organized by the program, either in alphabetical

order or otherwise. The bookmark category icons 80 are each associated with a set of links related to a particular category of information, such as finance, news, or sports. By selecting one of the icons, a separate application window containing the related links is opened on the screen. This is shown in Fig. 5a. This window also includes a vertically-oriented toolbar containing bookmark category icons 80 so that the user can switch to other categories of links by clicking on the appropriate icon 80. The program is operable to respond to the user's selection of any one of the links by accessing the selected web page using the default browser. As with the application icons 76, bookmark category icons 80 can be added or removed from the toolbar. Furthermore, additional links can be added to the categorized sets of links, whether by conventional drag and drop methods (i.e., dragging onto the bookmark category icons 80) or via menu commands.

To permit user customization, the toolbars containing application icons 76 and bookmark category icons 80 include a sidebar 82 that is initially positioned at the far left of the toolbar, as illustrated, and that can be moved by the user to a location between any two icons on the toolbar. Thereafter, icons to the left of the sidebar cannot be re-organized except by express action of the user. These toolbars also each include left and right arrow buttons 84 that shift the icons in the associated toolbar to the left and right, respectively. These arrow buttons will not affect any icons located to the left of sidebar 82. Each of the toolbars, including the pull-down menu toolbar, includes a collapse button 86 that serves to toggle the display of its associated toolbar. This permits users to collapse the display size of the graphical user interface and to hide those toolbars that the user does not wish to utilize often.

A final region of window 24 is a conventional linked icon 88, which can be used to direct the user's default browser to the home page of the company that provided client software application 10. Also, window 24 can include another icon (not shown) that, when selected, accesses a local floppy or other non-volatile data storage device to retrieve various types of data. For example, a user may want to utilize client application 10 on different

computers; for example, a laptop and home or office desktop computer. To prevent the user from having to separately customize each of the two user interfaces, GUI module 52 is operable to store the user's customization settings and preferences on a floppy disk or other non-volatile storage. This disk can then be inserted into the other computer and, once the client application is executed, clicking on the same icon will cause the program to access the disk and to retrieve and apply the user's customizations and preferences to the user interface.

In addition to the toolbar containing bookmark category icons 80, window 24 can also include a "home" or "local" toolbar (not shown) containing the same icons 80, but with the links associated with each category icon 80 being specific to the user's local and regional interests. Thus, for each category of information, this permits the user to keep links to local web sites separate from their other links. In this way the user can, for example, keep links related to local high school sports separately from links for professional sports. When an icon on this "home" toolbar is selected, a window (not shown) separate from that shown in Fig. 5a can be opened or, alternatively, the Fig. 5a window itself can be used, with a button or other means being provided to allow the user to switch between the icons representing the "home" groups of links and the icons representing the other groups of links.

Referring now to Figs. 4-6, the details of the various program components and modules that comprise client software application 10 will now be described. As discussed above, GUI module 52 provides the programming used to display application window 24 including all of its various regions on a computer monitor or display 26. It accesses user customizations and preferences from user data storage 34 via I/O module 58 and interfaces with the other program modules. The user interface provided by GUI module 52 is implemented using a number of program components written in ActiveX™. These components include a toolbar component 90, a URL text field component 92, a drag button component 94, a drag and direct component 96, a collapsible menu component 98, a collapsible toolbar component 100, a user profile access component 102, and an advertising banner component 104.

Toolbar component 90 contains the programming code used to display and manage the applications icons toolbar 76 and the bookmarks categories toolbar 80. This includes the programming that generates the slidebars 82 and left/right buttons 84. This component
5 interfaces with drag button component 94 which contains the programming that generates the various toolbar buttons that are represented by the different icons 76 and 80. Toolbar component 90 also interfaces with drag and direct component 96 which allows the user to customize the toolbars by shifting the icon buttons left or right on the toolbars, as well as drag and drop capabilities to add buttons to or remove buttons from the toolbars. URL field
10 component 92 provides the URL text field 74 that permits direct user input of URL's. Collapsible menu component 98 contains the programming that generates and provides functionality to the pull-down menu 70. Similarly, collapsible toolbar component 100 is used to generate the toolbar containing the menu icons 72. Components 98 and 100 can be derived from the main toolbar component 90 and can function like any other toolbar, except that they are collapsible. User profile access component 102 contains the programming used to access
15 the computer's floppy disk drive (as well as any other source) to read or write the user's customizations and preferences of the user interface. Banner component 104 contains the programming used to access and display an advertising banner specified by ADM module 54. In addition to the drag and drop capabilities discussed above, GUI module 52 can also include
20 the programming necessary to permit dragging of links onto category icons to add them to the associated set of links, as well as dragging of data files (e.g., documents) onto the application icons to initiate execution of the selected application using the selected data file.

ADM module 54 includes a key event component 108, a timer/display component 110,
25 a flag alert component 112, and an error handling component 114. These components are preferably written in ActiveX™ or Java™. User interaction with the computer, whether with the client software application itself or with other applications or the operating system, is monitored by GUI module 52 and reported to key event component 108. As will be

understood by those skilled in the art, the detection of user input to other programs and to the operating system itself can be implemented under Windows™ using system hooks. Key event component 108 determines whether the user interaction constitutes a key event; that is, whether a change in displayed banners should be made in response to the user input. If so, it informs timer/display component 110 which contains the programming that determines which banner should be displayed and what computer usage information should be stored for later reporting to ADM server 22. This component also includes a timer that periodically changes the advertisement displayed in banner region 78 in the absence of any user input. The selection of banners will be further described below in connection with Fig. 7.

Once a group of banners have been displayed their allotted number of times, timer/display component 110 notifies flag alert component 112, which sets a new banner flag. This flag is checked periodically and if set, ADM server 22 is accessed to download new banner advertising. If desired, flag alert component 112 can also maintain other flags for use by the system to record the state of various events. For example, it can include a flag that indicates whether the current execution of client software application 10 is the first execution following installation of the software. If so, a special introductory screen could be displayed. Other such uses will become apparent to those skilled in the art. Error handling and messaging component 114 is used to handle error conditions such as, for example, where a user has uninstalled a software application off the computer, but attempts to execute the uninstalled application from an application icon 76 still residing on the applications toolbar. This component can intercept the error message generated by the operating system and take appropriate action such as, for example, informing the user that the application cannot be located and asking whether the user wishes the application icon to be removed from the toolbar.

As mentioned above, client software application 10 monitors the user's interaction with applications other than itself using system hooks. As will be appreciated, this permits

the client software application to alter the normal response seen by the user to certain types of interactions with the computer. For example, GUI module 52 preferably monitors user action and, upon detecting that the user has initiated execution of a browser application, whether via an application icon 76 or directly via the computer's operating system itself, GUI module 52 can override the browser's default home page setting and redirect it to another web site. Preferably, the user is queried via a pop-up dialog box prior to redirection to ascertain whether he or she objects to starting the browser at some web site other than the default home page. This can be used as an additional means of exposing the user to advertising while providing the user with some variety in the use of their browser, since they are not limited to always seeing the same site upon startup of the browser. Other such uses of this feature will be apparent to those skilled in the art.

Notes module 56 provides messaging capabilities not only for personal use by the user, but also for use among different users. From the user's standpoint, the notes themselves comprise small pop-up windows containing short messages or reminders. These notes can be associated with certain events. For example, the user could set up a personal note that pops up at the end of the day when the user goes to exit the application. Alternatively, one user could send another user a note related to sports and could set that note to only pop-up when the receiver either accesses the sports bookmark category icon 80 or accesses a sports-related web site. The notes functions (e.g., creating a new note, sending a note, etc.) can be accessed via Tools under the pull-down menu 70. Notes sent between different users connected to the Internet is by way of ADM server 22, which acts as a messaging server, identifying individual users (whether senders or receivers) by way of their unique ID and handling the receipt and distribution of the notes.

Notes module 56 includes a display component 116, a logic component 118, a registration component 120, and a send/receive component 122, all of which can be written in ActiveX™ or Java™. The notes display component 116 contains the programming

responsible for the actual display of the pop-up notes on the monitor. The notes logic component 118 is responsible for the logical processing of the notes; for example, determining when or under what conditions a note will be displayed. Registration component 120 handles registration of the client software application with the messaging server process provided by ADM server 22. The send/receive component interfaces with I/O module 58 and is responsible for the actual transmission and reception of notes over the Internet.

I/O Module 58 is used as the interface between the various program modules and banner storage 30, user data storage 34, the Internet 20, and, if connected, a printer (not shown). It includes a reporting and printing component 124, a streams component 126, and a file I/O component 128. These components can all be written in ActiveX™ or Java™. Reporting and printing component 124 contains the programming code used to properly format and direct data to its proper output device (e.g., a printer, log file, etc.). The streams component 126 is used to manage the input and output functions which establish and provide data transmissions between components and objects. It is this component that is used to access the Internet via TCP/IP and can be used with other communications protocols, such as RMI and COM. The file I/O component 128 is used to manipulate stored files, including those used in the banner data storage 30 and user data storage 34.

Login module 60 (Fig. 4) comprises an ActiveX™ or Java™ login component which includes the programming that provides the user login and password validation features. If desired, this module can also include a security component that provides encryption of data transmitted over the Internet. PDA module 62 is an ActiveX™ or Java™ component that can be used to handle importing and exporting of user data between the client software application and the formats needed for use with a personal digital assistant. Also, this module can be used for interfacing the client software application with the user's current personal information management software, such as Outlook™, Lotus Notes™, or Netscape™ mail. The security

module can also include an import/export wizard for use by the user in converting between formats.

Builder module 64 interfaces with all of the other modules and contains the programming used to upgrade individual components of the software application from time to time. As with most of the other modules, it can be written in ActiveX™ or Java™. For purposes of upgrading components, each component has associated with it a version identifier that comprises a version name and version number, with the version name simply being the filename of the component or module. Builder module 64 is operable to determine the version name and number for each of the components currently installed on the client computer and to generate from that a current blueprint of the components. Then, the next time an Internet connection is available, the builder component can access ADM server 22 and download from it an upgraded blueprint. The builder module then compares these blueprints to determine whether the client software application installed on the computer is the most current version available. If not, the builder, having both blueprints, can determine specifically which new components it needs. Upgrading of existing components is typically accomplished simply by overwriting the existing files and making the appropriate entries into the Windows™ Registry. At the server side, adding new components to the application simply requires creating the new component and upgrading the existing components to work with the new component, followed by adding the new and revised components to the upgraded blueprint. Then, the next time the server is access by the builder module, it will download the new and revised components.

This upgrading process is implemented automatically by the client software application without requiring any user input or initiation of the process. Also, by modularizing the application in the manner described above, bug fixes and upgrading of features can be achieved without requiring downloading and installation of the entire software application. This is especially useful for distribution of software via the Internet, since software applications

typically require anywhere from several Megabytes to tens of Megabytes of disk space and the downloading of such large files can be burdensome.

It may be desirable or necessary from time to time to upgrade the builder module 64 itself so that it can evolve and provide new features not currently anticipated. For this purpose, auxiliary module 66 is provided. Upon builder module 64 determining from the blueprints that it needs to be upgraded itself, it turns over control to auxiliary module 66 and then terminates its execution so that it may be overwritten with the new builder module. Auxiliary module 66 then handles downloading and installation of the new builder module and other components.

As will be appreciated by those skilled in the art, builder module 64 or any of the other modules can have their own set of module commands which they use to perform particular functions. These module commands can be used by other modules to access or implement functions provided by that module. Additional module commands and, thus, additional functionality, can be added simply by creating upgraded modules that include the new module commands and using builder module 64 to upgrade to the new modules in accordance with the procedures described herein.

Referring now to Fig. 7, the details of the selection and use of banner advertising will now be described. In general, banners are displayed either in response to some user action (input) or, in the absence of user input, are displayed periodically at timed intervals. The client software application monitors the user's inputs to the computer and, when possible, targets the banner advertising displayed so that it relates to the what the user is doing.

Preferably, the banner advertisements are stored as graphical images on the client computer's hard drive and are replaced once they have been displayed a certain number of times. As mentioned above, this is accomplished by downloading new banner advertisements

from ADM server 22. To avoid running out of banners before new ones can be downloaded from ADM server 22, client software application 10 maintains a plurality of sets of locally stored banners and, at any one time, only displays banners contained in one of the sets. Then, when the banners in that set have all been displayed the allotted number of times, the next set of banners is used with the old set being replaced the next time that server 22 is accessed.

A banner database 130 is stored on the client computer's hard drive along with the image files themselves. This database contains information that is used by timer/display component 110 to determine when the banner should be displayed. In the representation of banner database 130 shown in Fig. 7, each row is a data set that is associated with a different one of the banners. The columns represent individual data items within each data set. The data for each banner includes the filename of the image file, a destination link, one or more associated category identifiers, one or more associated trigger links, one or more associated programs, and a priority level. The destination link is (typically) the URL of the web site to which the default browser will be directed if the user clicks on the banner while it is displayed. The category identifiers specify those categories to which the banner relates and can correspond exactly to the categories used in connection with the bookmark category icons 80 discussed above in connection with Fig. 5. For example, an advertisement for a securities brokerage would be related to finance and possibly business. By associating those category identifiers with the banner in database 130, ADM module 54 will be able to determine the proper time for display of the brokerage advertisement. The associated trigger links specify locations for which the associated banner should be displayed when one of the specified sites are accessed. In the first example given in Fig. 7, if the user were to direct his or her browser to www.lotus.com/123, ADM module 54 would display the banner01.gif image. Where multiple banners are associated with the same link, ADM module 54 determines which of the banners should be selected based upon another criteria such as number of times each banner has previously been displayed. The associated programs column is similar in that execution of one of the specified applications (rather than a visit to a web site) will result in an associated

banner being displayed. Finally, the priority level is used to determine the specificity of the targeting of the advertisements.

More specifically, ADM module 54 is programmed to select and display banners at any one of three different levels of processing. The first is the general level, which is the default priority level at which the processing is set when the client software application is first executed. In this mode, only banners having a general priority level will be displayed. The second level is the medium processing level, in which both medium and general banners are displayed, but at a weighting that favors the medium banners. Preferably, when operating in this mode, only one general priority level banner is displayed for every three medium level banners. Similarly, the third level is the high level at which high, medium, and general banners are displayed, with ten high priority level banners being displayed for every three medium level banners and for every one general level banners. The processing level at any one time is determined by the user's actions. In particular, when the user begins execution of an application or selects one of the bookmark category icons 80, the processing level is set to medium so that no high level banners will be used for display. When the user selects a link, the processing level changes to high at which point all banners are candidates for display, with the high priority level banners being given favoritism in the 10-3-1 ratio mentioned above. This ratio can be adjustable by ADM module 54, if desired.

It will be appreciated that other data items for the banners can be included in database 130. For example, each banner can have associated with it a maximum number of permitted displays, with this number being decremented each time that the banner is displayed. This allows different advertisements differing amounts of exposure. Similarly, each banner can have associated with it a weighting or frequency that is used by ADM module 54 to determine how often the banner should be displayed relative to other banners at the same priority level. A "display first" property can also be provided for any particular banner that indicates that it should be displayed before others at its same priority level, with timer/display component 110

providing the programming needed to insure that only one such banner at each priority level has this property set. Apart from the category identifiers, each banner can also have a number of keywords associated with it and ADM module 54 can be programmed to examine the web pages visited by the user to determine if any of those keywords are present, whether they be
5 located in the web page as META TAGs or simply contained in the text of the page. If so, one of the banners associated with the located keyword could be displayed.

As will be apparent to those skilled in the art, client software application 10, acting in conjunction with ADM server 22, provides a two-tiered approach to targeted advertising. The
10 first tier is the initial selection of banners to be downloaded to the user based upon the user's demographic information. The second tier is the reactive targeting of the advertisements based upon user interaction with the computer. Moreover, since client software application 10 communicates with server 22 from time to time and can report back computer usage
15 information as well as information concerning the display of the banners, this information can be associated with the user's demographic information (by way of their unique ID) at the server and then used by the advertisers to help them better understand the consuming public.

As will be appreciated by those skilled in the art, the reactive targeting provided by client software application 10 is handled in real time, rather than simply as a part of building a
20 set of advertisements for later display to the user. This permits the display of advertising that is relevant to what the user is doing at any particular time. Thus, if the user is using the computer to search for information on stocks, then client software application 10 can detect this (whether by recognizing the web site being accessed, the keywords used in the web pages being accessed, the program being executed, or some other aspect of the user's search) and can
25 display an advertisement that is relevant to this topic, whether it be for a stock brokerage, a stock exchange, an investment group, or some other organization. Furthermore, for user computers that enjoy a full time connection to the Internet, the reactive targeting can be used to access a specific advertisement over the Internet, rather than from a pre-stored banner from

banner storage 30. This can be accomplished by replacing the local image filenames in the first column of banner database 130 with an Internet address of a specific image file. Alternatively, the user's actions that are used to select an advertisement via banner database 130 can be sent to ADM server 22 or some other advertising server as posted form data, with the server using the data to select and download an appropriate advertisement. This permits real time targeting of advertising while expanding the available pool of advertisements without having to previously download the complete set of advertisements to the user's computer.

Referring now to Fig. 8, the process for providing access to the client software application and for obtaining and utilizing demographic information regarding the user will now be described. As will be appreciated, the software download and data gathering process of Fig. 8 can be implemented by a suitable server program residing on ADM server 22. As indicated at blocks 132 and 134, in response to server 22 receiving a download request from a user, the server sends a form to the user and then waits for the completed form to be posted back to the server. The form can include a number of required fields that provide the minimum data needed to generate a proper demographic profile of the user. Once server 22 has received the completed form, a check is made to determine whether all of the required fields have been completed, as indicated at block 136. This check can include a certain amount of validity checking of the data. For example, if the user is required to specify the city and state in which they live, a check could be made to determine whether the city and state reported by the user actually exists. Similarly, a reported area code could be checked to determine its validity. If required information is missing or invalid, flow moves to block 138 where the server resends the form with a request for correction. As is known, this can include an identification of the particular required data that was missing or invalid. Once server 22 receives a correctly completed form, flow moves to block 140 where server 22 assigns a unique ID to the user and then stores that ID along with the received demographic data, as indicated at block 142. As discussed above in connection with Fig. 3, this data is stored in the user/demographics data base 46. Then, an initial set of banner advertisements and links are

selected based upon the user's zip code, indicated at block 144. The links are used to provide an initial set of links for each of the bookmark categories represented by icons 80. Thereafter, client software application 10 is downloaded to the user's computer for installation by the user, as indicated at block 146. Preferably, the client software application is packaged as a single, self-extracting ZIP file and includes an installation program that handles installation of the program and all of its components into proper directories, as well as making the necessary entries into the Windows™ Registry.

The user ID that is stored along with the demographic data is used to anonymously identify the user for the purpose of demographically targeting advertising to that user. This can be accomplished by assigning the user ID to the particular copy of the client software application downloaded by the user. Alternatively, the user ID can be included in a cookie placed by server 22 on the user's computer 18 and this cookie can be accessed by server 22 each time computer usage information is sent to server 22 so that the ID can be associated with the computer usage information. In the illustrated embodiment, the user ID is associated with a user login that is required each time the client software application is executed. By having the user login to the application, it can identify which demographics are associated with this particular user. Also, the provision of a user login allows the client software application to be utilized by multiple users, while permitting different demographically targeted advertising to be displayed for each user. This will now be described in connection with Fig. 9.

As shown in Fig. 9, upon execution of the client software application 10, a login and password input box is displayed. This is shown at block 148. Once the user has entered a login name, a check is made at block 150 to determine whether the user name is new. If not, a check is made at block 152 to determine whether the password provided for the recognized login name is correct. If not, flow returns to block 148 where the login box is again displayed. If the password is correct, flow moves to block 154 where the application accesses the user's

set of preferences and customizations for the display of the graphical user interface. The application also accesses the banner database and various bookmark categories for that user which, as described above, contains for each category of information a number of links to different information resources. Flow then moves to block 156 where the graphical user interface is displayed along with a first banner. The login names and associated passwords can be stored in the user data storage 34. Similarly, the user preferences, categorized lists of bookmarks, and banner database can be stored in user data storage 34.

If, back at block 150, the login name is determined to be new, the user can be queried as to whether they would like to set up a new account, as indicated at block 158. If not, then flow returns to block 148 where the login screen is again displayed. If a new account is desired, flow moves to block 160 where the application requests various demographic data, which can be the same data requested of the user who originally downloaded the application from server 22. At block 162 a check is made to determine whether all required demographic data was provided. If not, flow returns to block 160 to again request the required data. Once all required information has been provided, flow moves to block 164 where the application reports demographic data back to server 22, receives an assigned ID from the server, and stores the new user data at the client computer in user data storage 34. Flow then moves to block 166 where default preferences and bookmark lists are accessed and assigned to the new user. Flow then moves to block 156 where the graphical user interface is displayed, at which point the user can begin normal use of the application.

If desired, all user-specific information, including logins, password, demographic data, assigned ID, preferences, banner database, and bookmark lists can be stored together as a separate file and treated as a separate user object. This file can be both stored locally on client computer 40 and reported back to server 22. Moreover, this single file can then be used to transfer the user specific data between different computers upon which the application resides. By storing the demographic data at the client itself, demographic targeting of advertising can

be accomplished if desired by client software application 10 itself. Furthermore, in situations in which the computer operating system requests a login as a part of boot-up of the computer, or in networked environments where a login at the computer is required for network access, client software application 10 can use the identification of the user provided by these logins rather than requiring a separate login upon execution of the application itself. This allows the client software application to determine who is using the computer without having to request a separate user login.

Turning now to Fig. 10, there is shown an overview of the core operation of client software application 10. The first step is at block 168 where a check is made to determine whether access to ADM server 22 is needed. Access may be needed to report computer usage information or to download new banner advertising, for example. If no access is currently needed, flow moves to block 170 where a check is made to determine if there is any user input to the computer. If not, flow moves to block 172 where a check is made to determine whether the timer operated by timer/display component 110 has expired. If not, no action is taken and flow returns to block 170 to again check for user interaction with the computer. If the timer has expired, flow moves to block 174 for selection and display of a suitable banner. If, at block 170 user input was detected, flow moves to block 176 where the user input is processed. Flow also moves to block 178 where a check is made to determine whether the user interaction constitutes a key event. If not, flow returns to block 168 and the process repeats. If a key event is detected, then flow moves to block 174 where the key event is processed.

If, at block 168 it was determined that access to ADM server 22 is needed, flow moves to block 180 where a check is made to determine whether an Internet connection is available to the client computer. If no connection is available, the server cannot be accessed at this time and flow therefore moves to block 170. If an Internet connection is available, flow moves to block 182 where the current computer usage information is reported to ADM server 22.

Then, if necessary, the client software application downloads new banners, as indicated at block 184. Flow then moves to block 186 where the new banner flag is reset along with any flags used in reporting of computer usage information. At block 188 a check is then made to determine whether any of the components of software application 10 need to be upgraded. If not, flow moves to block 170 to look for user interaction. If a newer version of one or more components is available, flow moves to block 190 where the builder routine is executed.

Referring now to Fig. 11, the processing of user input represented by block 176 of Fig. 10 will now be described. This processing begins at block 192 where a check is made to determine whether a user has selected a banner by, for example, a mouse click on the banner itself. If so, flow moves to block 194 where the URL associated with the selected banner is accessed and the user's default browser used to access the site specified by that URL. This process then ends with the flow returning to block 168 of Fig. 10. If at block 192, a banner has not been selected, flow drops down to block 196 where it is determined whether a shortcut or application has been selected. This includes any of the application icons on the application's graphical user interface itself or a shortcut or application selected from the Windows™ desktop. If so, flow moves to block 198 where the priority is set to medium following which flow moves to block 200 where the shortcut or application is executed or otherwise processed in accordance with the normal operation of the operating system. If at block 196 it was determined that no shortcut or application was selected, then flow moves to block 202 where a check is made to determine whether one of the bookmark category icons was selected. If so, flow moves to block 204 where the priority is set to medium, following which flow moves to block 206 where a second application window is opened displaying the links associated with the selected category. If at block 202 no category was selected, then flow moves to block 208 where a check is made to determine whether a specific bookmark or link was selected by the user. If so, flow moves to block 210 where the priority is set to high, following which the default browser is run and the web page specified by the selected link is accessed. If at block 208 no link was selected by the user, flow drops down to block 214

where a check is made to determine whether the user has entered a URL or other web page address into URL text field 74. If so, flow moves to block 216 where the priority is again set to high following which the default browser is opened and the specified link is accessed, as indicated at block 218. If at block 214 no URL was inputted, then no further action is taken by client software application 10.

Turning now to Fig. 12, the processing of key events represented by block 174 of Fig. 10 will now be described. As indicated at block 220, the first step is to determine the current priority level which, as discussed in connection with Fig. 11 may have been set from the default general priority level to either medium or high. Flow then moves to block 222 where, in the case of the priority being either medium or high, the selected category of information (finance, news, sports, etc.) is determined so that only those banners associated with that category can be selected as candidates for display. Then, at block 224, using the determined category a particular banner is selected and displayed in the banner region 78. As previously discussed, in addition to an associated category, the banners can also be selected based on associated links and/or programs in the event, for example, that the user accesses a website that is listed in the banner database 130. Flow then moves to block 226 where a record is made of the occurrence of the event, the display of the banner, and the time that the event occurred. This computer usage information can now be reported back to ADM server 22 or a reporting flag can be set so that this information can be reported back the next time that the server is accessible. Flow then moves to block 228 where the banner count associated with the displayed banner is incremented by one. Then, at block 230, a check is made to determine whether the current group of banners has expired, based on their banner counts. If not, the key event processing is finished and flow then returns to block 168 of Fig. 10. If the banners have expired, then flow moves to block 232 where the next available set of locally stored banners is utilized for display purposes and the flag alert component 112 is notified so that it can set the new banner flag, as indicated at block 234. Processing then returns to block 168 of Fig. 10.

Referring now to Fig. 13, a first implementation of the builder routine 190 of Fig. 10 will now be described. The process begins at block 236 where the builder component 64 accesses version numbers for each component in the client software application. Flow then moves to block 238 where, using this information, builder component 64 generates a current blueprint. Then, at block 240, the builder component accesses an updated blueprint from ADM server 22. At block 242, a check is made to determine whether the updated blueprint is the same as the current blueprint. If so, the client computer has the upgraded version and no upgrading is necessary, as indicated at block 244. Flow then returns to block 168 of Fig. 10. If, at block 242, the updated blueprint is different from the current blueprint, flow moves to block 246 where the builder module determines which components are new or need upgrading. Flow then moves to block 248 where a check is made to determine whether the builder module itself needs to be upgraded. If not, flow moves to block 250 where the new or upgraded components are downloaded from server 22 and installed. If an upgraded builder module is needed, then flow moves from block 248 to block 252 where control is passed from the builder module to auxiliary module 66, following which flow moves to block 254 where execution of the builder module is terminated so that it may be overwritten with the new builder module. Flow then continues to block 250 where the builder module and other upgraded components are downloaded and installed under control of auxiliary module 66. Flow then returns to block 168 of Fig. 10.

Referring now to Fig. 14, another embodiment of builder routine 190 of Fig. 10 will now be described. In this embodiment, the builder module does not determine the current names and version numbers of all the modules that make up client software application 10, but rather uses a version ID associated with the application to determine whether upgrading of any of the components is necessary. The process starts at block 256 where the builder module accesses an updated blueprint ID from ADM server 22. Then, at block 258, a check is made to determine whether the updated ID is the same as the current version ID. If so, then no

upgrading of components is necessary as indicated at block 260 and flow returns to block 168 of Fig. 10. If the ID's are not the same, flow moves to block 262 where the builder module sends the current version ID back to ADM server 22. This current ID is used by ADM server 22 to determine which components need to be downloaded and installed at the client computer so that it has the most recent version. Then, at block 264, the builder module downloads and installs the updated components, following which the process returns to block 168 of Fig. 10. As with the process of Fig. 13, auxiliary module 66 can be used in the event of upgrading of builder module 64 itself. As will be appreciated by those skilled in the art, once the new components have been downloaded and installed, whether by the process of Fig. 13 or Fig. 14, restarting of the computer may be necessary.

It will thus be apparent that there has been provided in accordance with the present invention a method and apparatus for providing an automatically upgradeable graphical user interface with targeted advertising which achieves the aims and advantages specified herein. It will of course be understood that the foregoing description is of a preferred exemplary embodiment of the invention and that the invention is not limited to the specific embodiment shown. Various changes and modifications will become apparent to those skilled in the art. For example, although the advertising features described herein have been disclosed in connection with client software application 10, it will be appreciated that these features can be incorporated into any of a number of other types of software applications and can even be incorporated into the operating system's user interface itself. Other features of client software application 10 can be incorporated into and made an integral part of other software applications and operating systems. Also, rather than downloading the client software application via the Internet or some other network, it could be installed on the user's computer from a CDROM or DVD, with the new user login process of Fig. 9 being used to acquire demographic data on all users of the software. All such variations and modifications are intended to come within the scope of the appended claims.

CLAIMS

I claim:

5 1. An apparatus for use by a computer to provide a user of the computer with access to information resources, the apparatus comprising:

 a non-volatile data storage device;

 a first program module stored on said non-volatile data storage device in a computer-readable format;

10 said first program module being operable upon execution to display a graphical user interface comprising a window separated into a number of regions;

 a first one of said regions including a number of user-selectable items, at least some of which are each associated with a different data set, said data sets each representative of a different category of information and each of said data sets comprising a number of user-selectable links to different information resources;

15 a second one of said regions comprising an information display region,

 a second program module operable upon execution to select informational data to be displayed in said information display region;

20 wherein said first program module is operable in response to selection of a first one of said links to provide the user with access to its associated information resource and to notify said second program module of the selection of said first link; and

25 wherein said second program module is operable in response to notifications from said first program module to select the informational data to be displayed from among a larger amount of said informational data, said second program module further being operable to store statistical data regarding the display of said selected informational data.

2. An apparatus as defined in claim 1, wherein said informational data is selected by said second program module in accordance with the category of information associated with the one of said data sets that contains said first link.

5 3. An apparatus as defined in claim 1, wherein said second program module is stored in computer-readable format on said non-volatile data storage device and is stored as one or more files that are separate from said first program module, whereby said apparatus comprises a computer-readable memory.

10 4. An apparatus as defined in claim 1, wherein, when said second program module is stored on a server accessible by the computer over a computer network, said first program module is operable to access and download said second program module to said non-volatile data storage device via the network.

15 5. An apparatus as defined in claim 4, further comprising a third program module stored on said non-volatile data storage device, said third program module being operable to automatically request upgrade information from the server and to cause downloading and implementation of an upgraded version of at least one of said first and second modules.

20 6. An apparatus as defined in claim 1, wherein said information display region comprises a banner region and said informational data comprises one of a plurality of advertisements accessible to said second program.

25 7. An apparatus as defined in claim 6, wherein said second program is operable to select said one of said advertisements from among a first subset of said plurality of advertisements and, in response to each of the advertisements in said first subset having been displayed a selected number of times, to select said one of said advertisements from among a second subset of said plurality of advertisements.

8. An apparatus as defined in claim 7, wherein said second program is operable in response to each of the advertisements in said first subset having been displayed said selected number of times to request a new first subset of advertisements from a server and, in response to receipt of said new first subset, to replace the advertisements in said first subset with the advertisements in said new first subset.

9. An apparatus as defined in claim 6, wherein said second program is operable to select said one of said advertisements from among a plurality of said advertisements in accordance with the category of information associated with said first link.

10. An apparatus as defined in claim 6, wherein said second programs is operable to select said one of said advertisements in accordance with one or more keywords contained in the information obtained from the information resource accessed using said first link.

11. A computer-readable memory for use by a computer to provide a user of the computer with an automatically-upgradeable software application, comprising:

a non-volatile data storage device;

a program stored on said non-volatile data storage device in a computer-readable format, said program comprising a plurality of program modules;

at least one version identifier associated with one or more of said program modules, said version identifier(s) being stored on said non-volatile storage device;

wherein one of said program modules is operable upon execution to access said stored version identifier(s) and at least one updated version identifier from a server via a global public network, with said updated version identifier(s) representing one or more updated program modules accessible from a server via the public network, wherein said one program module is further operable to download one or more updated program modules when said stored version identifier and said updated version identifier are different, with said updated program

module(s) replacing one or more of said program modules stored on said data storage device, and, further, wherein said one program module is operable to store said updated version identifier.

5 12. A computer-readable memory as defined in claim 11, wherein said one program module is operable when executed by a microprocessor to compare said stored version identifier with said updated version identifier and, if said stored and updated version identifiers are different, to send a download request to a server via the public network.

10 13. A computer-readable memory as defined in claim 11, wherein at least some of said program modules each have a unique version identifier associated therewith and wherein said one program module is operable to generate a current blueprint of said program modules by accessing each of said unique version identifiers.

15 14. A computer-readable memory as defined in claim 13, wherein said one program module is operable to receive from the server an updated blueprint containing updated version identifiers and, wherein said one program module is further operable to compare said current and updated blueprints and to download one or more updated program modules if any of the updated version identifiers from the updated blueprint do not match a unique version
20 identifier from the current blueprint.

 15. A computer-readable memory as defined in claim 13, wherein said one program module is operable to send the current blueprint to a server via the public network.

25 16. A computer-readable memory as defined in claim 11, wherein said version identifiers comprise a module identifier and a module version number.

17. A computer-readable memory as defined in claim 16, wherein said one program module has a version identifier associated therewith and wherein said one program module is operable to upgrade itself when its version identifier does not match its associated updated version number.

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18. A computer-readable memory as defined in claim 17, wherein said one program module is written in a programming language and has a number of module commands associated therewith, each of said module commands being used by said one program module to invoke one or more instructions in said programming language, wherein said one program module is operable to perform a function in response to receiving one or more of said module commands, whereby additional module commands can be added to said one program module by automatically upgrading said one module command via the public network.

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19. A computer-readable memory as defined in claim 18, wherein said one program module is stored in a file and is operable to upgrade itself by passing control to an auxiliary module, terminating its execution, and thereafter being replaced by an updated version downloaded from a server.

20. A computer-readable memory as defined in claim 16, wherein each of said modules comprise a separate computer file and wherein said module identifier includes a filename.

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21. A computer-readable memory for use by a computer to provide a user of the computer with an integrated graphical interface to a plurality of computer resources, the computer-readable memory comprising:

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a non-volatile data storage device;

a program stored on said non-volatile data storage device in a computer-readable format;

said program being operable upon execution to display a graphical user interface comprising an application window separated into a number of regions,

a first one of said regions including a number of graphical objects, at least some of which are each representative of a different computer application and are selectable by the user via an input device, wherein said program is operable upon selection of one of said graphical objects to initiate execution of the computer application associated therewith;

a second one of said regions including a number of menu items selectable by the user, each of said menu items having a function associated therewith;

a third one of said regions including a number of user-selectable items, at least some of which are each associated with a different data set, said data sets each comprising a number of links to different information resources, wherein said program is operable in response to selection of one of said items to provide the user with access to its associated data set;

a fourth one of said regions including a user-input text field, wherein said program is operable to access one or more computer files specified by the user via text inputted into said text field;

a fifth one of said regions comprising a banner region, wherein said program is operable to access banner data and display said banner data in said banner region; and

said window including a display object that is selectable by the user via the input device, wherein said program is operable in response to selection of the display object to access information stored on a data storage device located in a disk drive within the computer.

22. A computer-readable memory as defined in claim 21, wherein said application window includes a sixth one of said regions that includes a number of user-selectable graphical icons, each of which is associated with one of said menu items, wherein said program is operable in response to selection of one of said graphical icons to carry out the menu item associated with the selected graphical icon.

23. A computer-readable memory as defined in claim 21, wherein each of said data sets comprise at least one link to at least one information resource.

24. A computer-readable memory as defined in claim 21, wherein said items in said
5 third region comprise link category buttons and wherein said program is operable in response to selection of one of said link category buttons to display a second window containing links from the data set associated with said one of said link category buttons.

25. A computer-readable memory as defined in claim 21, wherein said second window
10 can be positioned by the user independently of the position of said application window.

26. A method of providing demographically-targeted advertising to a computer user,
comprising the steps of:

providing a server that is accessible via a computer network,

15 permitting a computer user to access said server via said computer network,

acquiring demographic information about the user, said demographic information
including information specifically provided by the user in response to a request for said
demographic information,

20 providing the user with download access to computer software that, when run on a computer, displays advertising content, records computer usage information concerning the user's utilization of the computer, and periodically requests additional advertising content,

transferring a copy of said software to the computer in response to a download request
by the user,

25 providing a unique identifier to the computer, wherein said identifier uniquely identifies information sent over said computer network from the computer to said server,

associating said unique identifier with demographic information in a database,

selecting advertising content for transfer to the computer in accordance with the
demographic information associated with said unique identifier;

transferring said advertising content from said server to the computer for display by said program,

periodically acquiring said unique identifier and said computer usage information recorded by said software from the computer via said computer network, and

5 associating said computer usage information with said demographic information using said unique identifier.

27. The method of claim 26, further comprising the step of periodically selecting and transferring additional advertising content to the computer in response to a request therefor.

28. The method of claim 26, wherein said computer network is a publicly-accessible global computer network.

29. The method of claim 26, wherein said unique identifier identifies said copy of said software from among other copies of said software

30. The method of claim 26, wherein said providing a unique identifier step further comprises storing a cookie on the computer.

31. The method of claim 26, wherein said providing steps further comprise providing said computer software which, when run on the computer, requires a user login to use said software and associates a different unique identifier with each of a number of valid users of said software.

32. The method of claim 26, wherein said providing steps further comprise providing said computer software which, when run on the computer, requires a user login to use said software and uses the user login to associate one of a number of unique identifiers with the computer usage information recorded by said software.

33. The method of claim 26, wherein said computer usage information includes data regarding information resources accessed by the user over the global computer network.

5 34. The method of claim 26, wherein said computer usage information includes data regarding software applications run by the user on the computer.

35. The method of claim 26, wherein said acquiring step further comprises requesting said demographic information in response to a request from the user to download said software and receiving said demographic information from the user prior to providing the user with access to said software.

35. The method of claim 26, wherein said step of providing download access further comprises examining said demographic information to determine that said demographic information includes certain required information and, upon determining that said demographic information includes said required information, providing the user with said download access to said software.

36. The method of claim 35, further comprising the step of limiting said required information to demographic information, whereby the user is permitted anonymous download access to said software and the server is provided demographically-relatable computer usage information.

37. A computer-readable memory for use by a computer to provide a user of the computer with targeted information, comprising:
a non-volatile data storage device;

a program stored on said non-volatile data storage device in computer-readable format, said program being operable upon execution to display a window containing an information display region;

wherein said program is operable to select and display informational data in said information display region, said informational data comprises a plurality of display objects with at least some of said display objects each having a data set associated therewith, said data sets each including one or more of the following data items:

a category identifier that indicates a category of information to which the associated display object relates, wherein said program is operable in response to a user action relating to one of said categories of information to display in said information display region a display object having an associated category identifier that relates to that one category of information;

a software application identifier that identifies a software application that may be accessible to the user via the computer, wherein said program is operable in response to user selection of the software application to display in said information display region a display object associated with the selected software application.

38. A computer-readable memory as defined in claim 37, wherein said category identifier comprises at least one keyword and wherein said program is operable in response to user access to an information resource to determine if said accessed information resource contains said keyword and, if so, said program is operable to display in said information display region a display object associated with said keyword.

39. A computer-readable memory as defined in claim 37, wherein said program is operable in response to user selection of an associated group of links that are related to one of said categories of information to display in said information display region a display object associated with that one category of information;

40. A computer-readable memory as defined in claim 39, wherein said program is operable to provide a user interface comprising a number of user-selectable items, each of which represents a different group of associated links and each of which is associated with one of said categories of information, wherein said program is operable in response to user selection of one of said user-selectable items to display in said information display region a display object associated with the category of information to which that one selected item relates.

41. A computer-readable memory as defined in claim 37, wherein one or more of said data sets include a destination identifier that provides a link to an information resource, wherein said program is operable in response to user selection of a display one of said display objects to cause the computer to access the information resource associated with said selected display object.

42. A computer-readable memory as defined in claim 37, wherein one or more of said data sets include at least one trigger link, wherein said program is operable in response to user access to an information resource identified by said trigger link to display in said information display region the display object associated with said trigger link.

43. A computer-readable memory as defined in claim 37, wherein said display object comprises a graphical image.

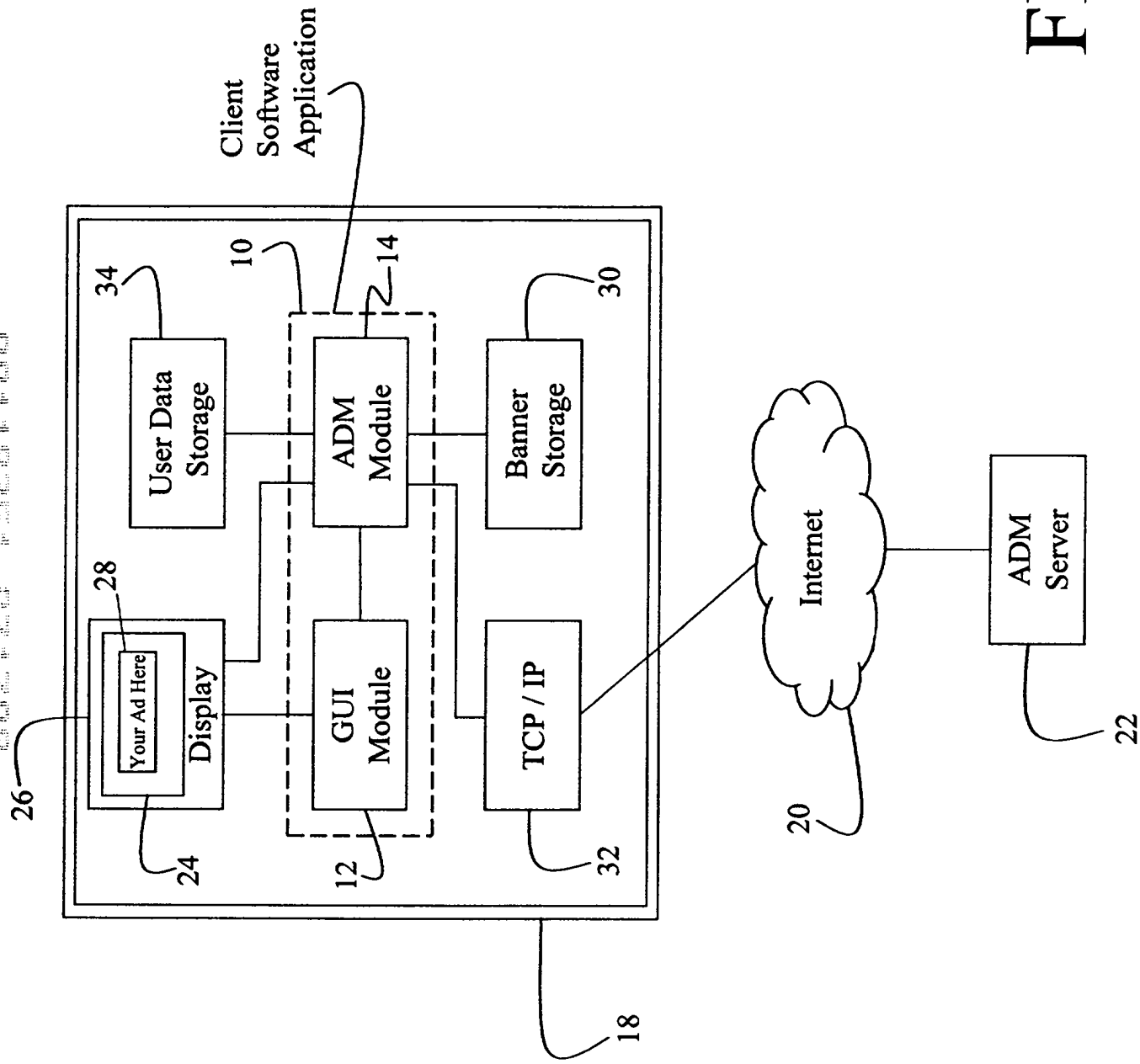


FIG. 1

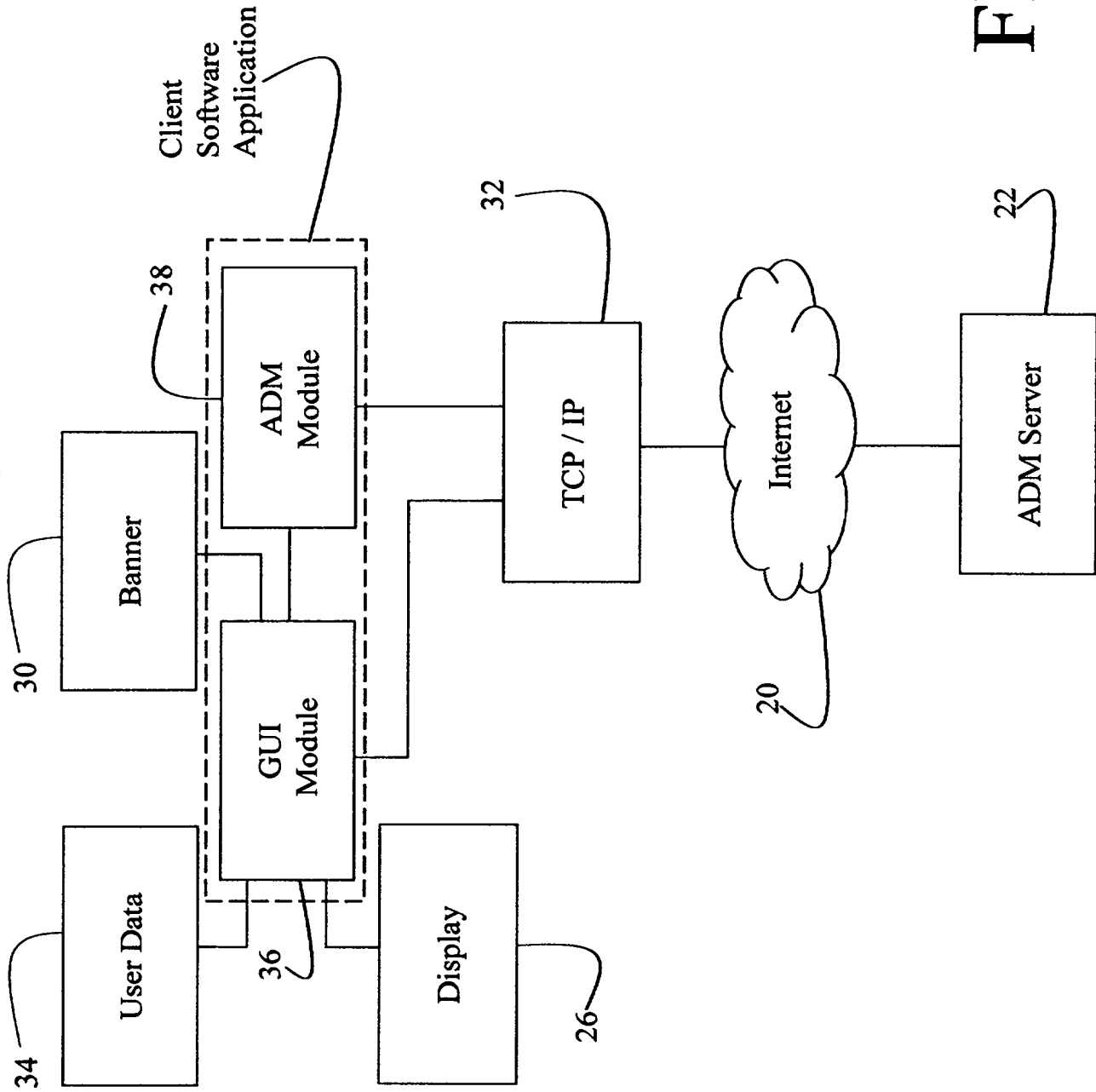


FIG. 2

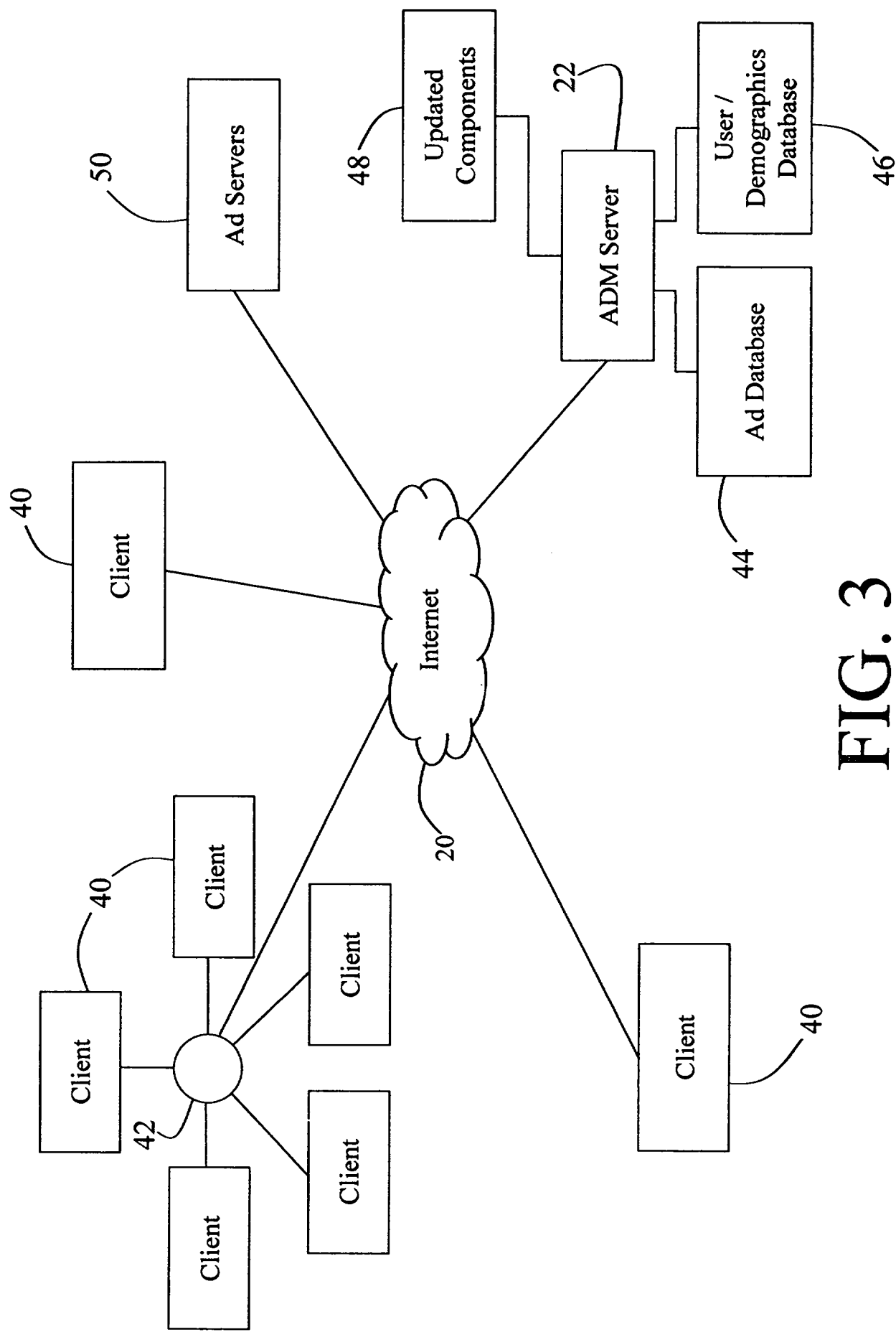


FIG. 3

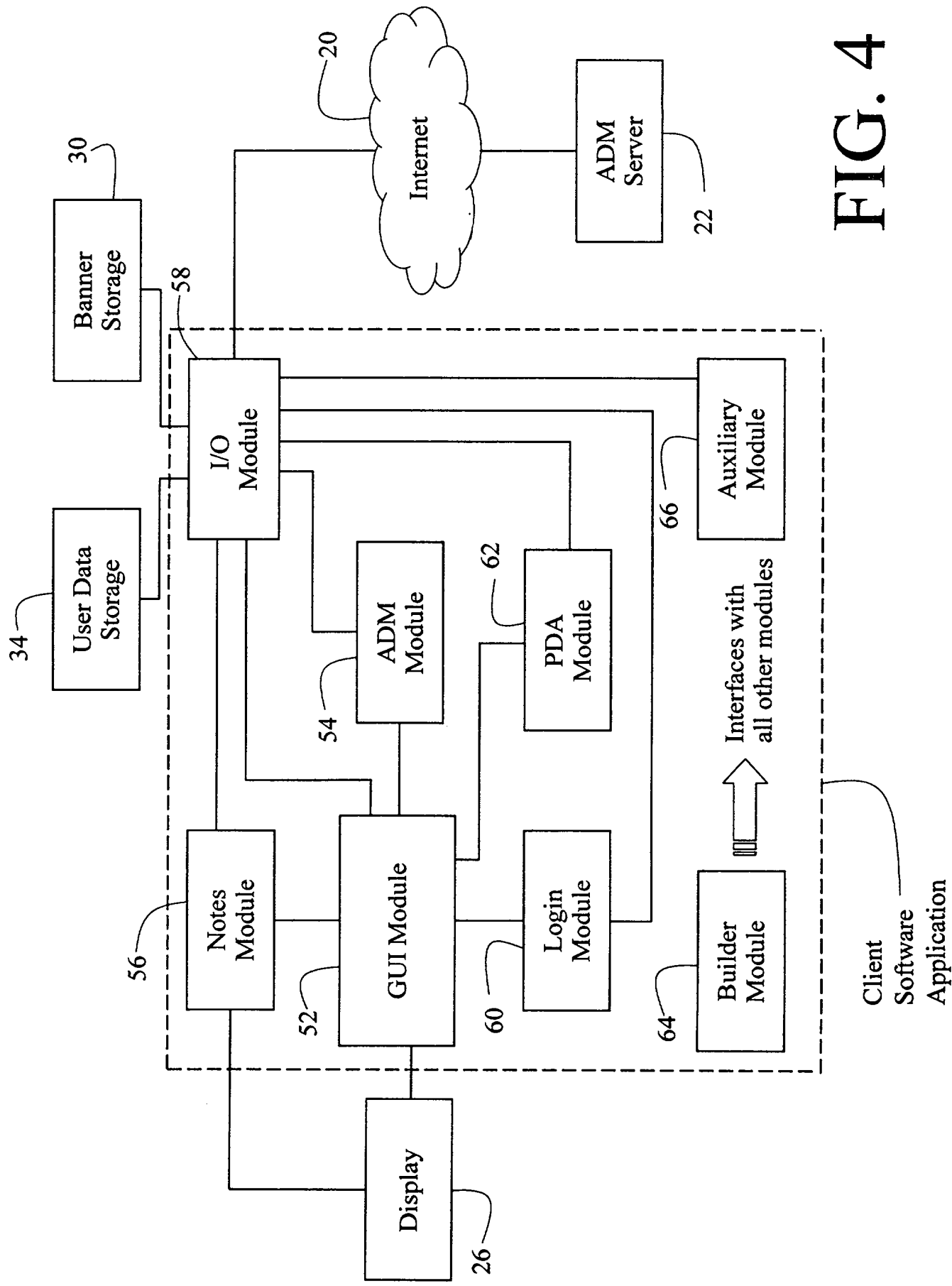


FIG. 4

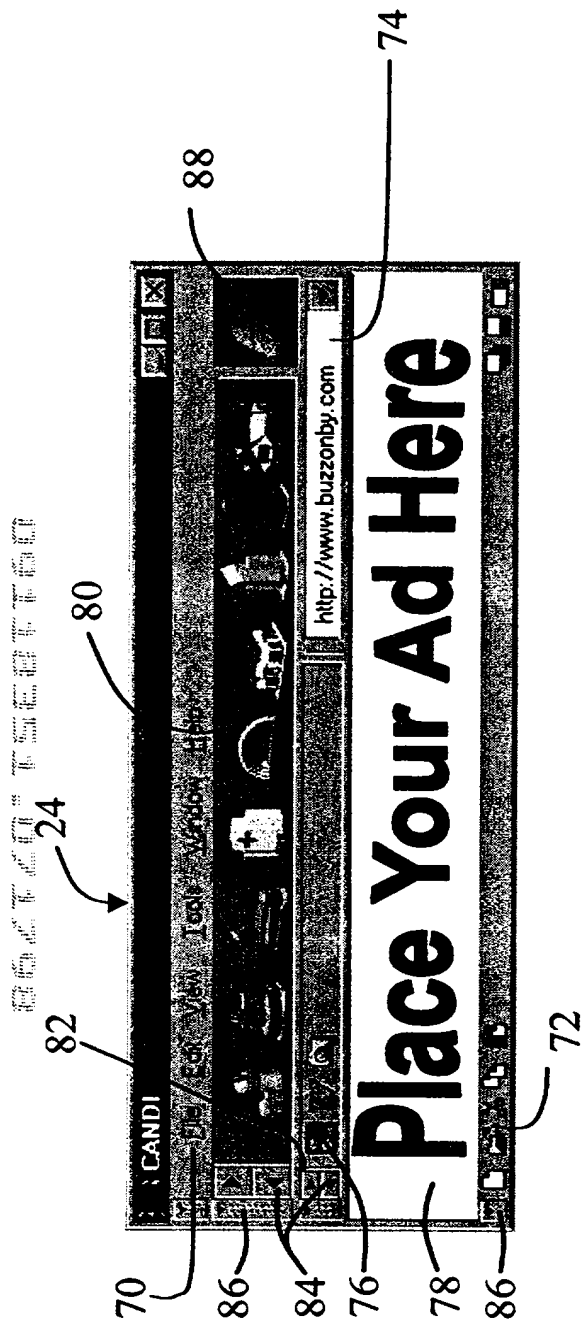


FIG. 5

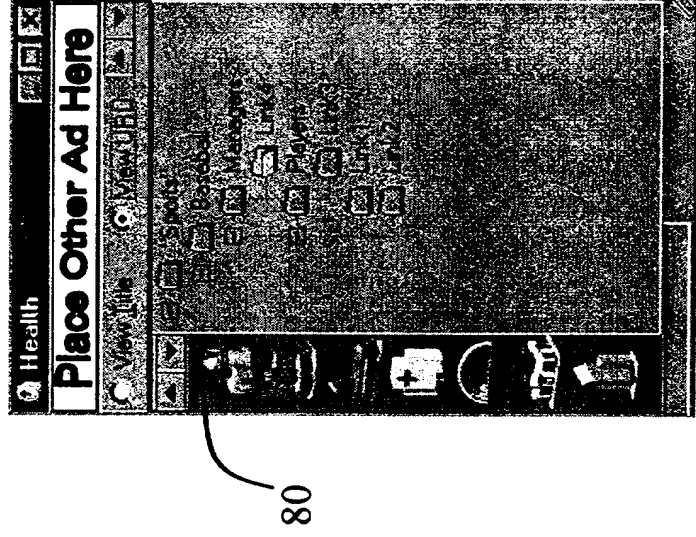


FIG. 5a

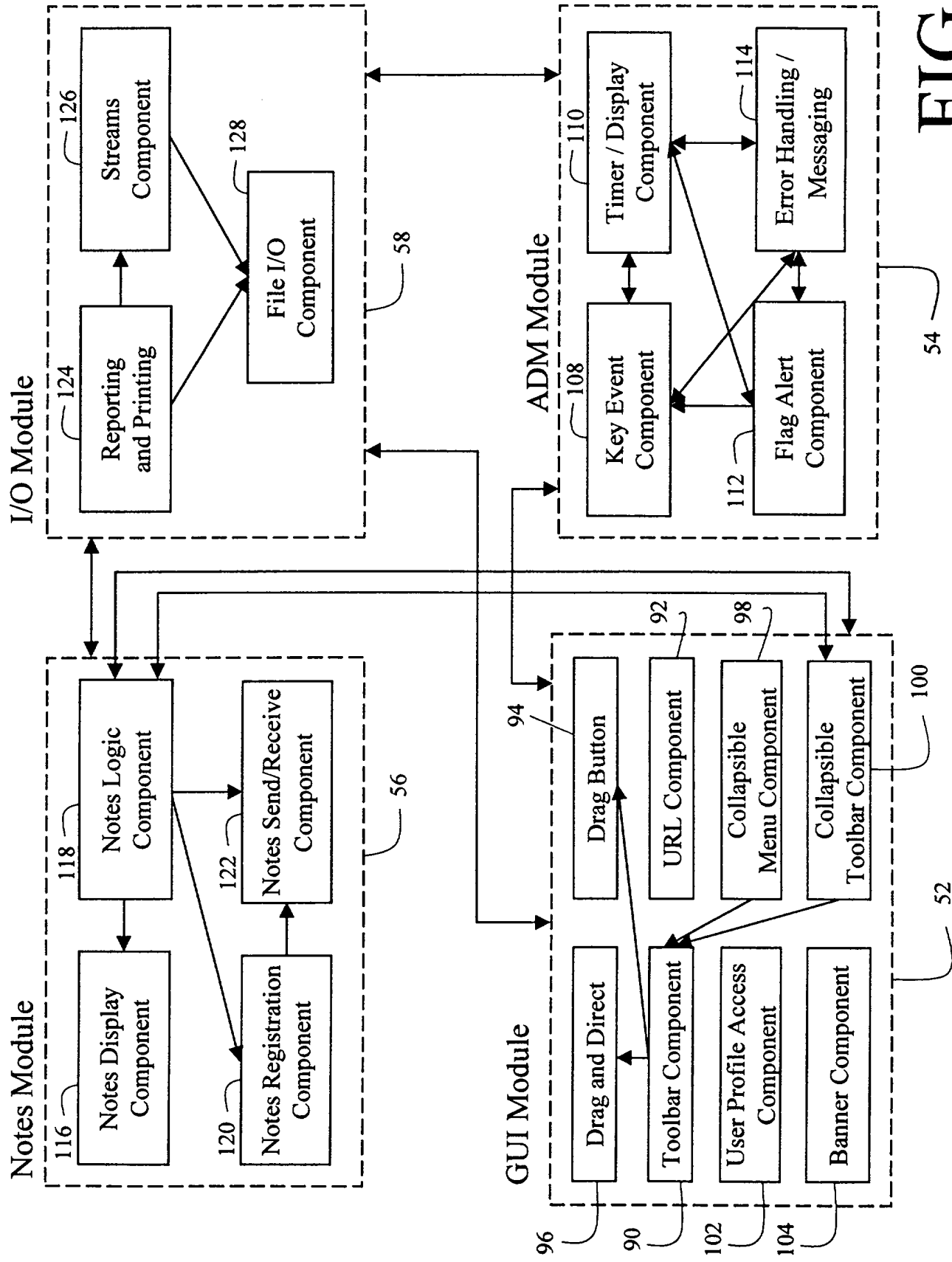


FIG. 6

Image File	Destination Link	Associated Categories	Associated Links	Associated Programs	Priority Level
Banner01.gif	www.first_link.com	business, finance	www.microsoft.com/excel www.lotus.com\123	Excel™, 123™	General
Banner02.gif	www.second_link.com \ products	business, shopping, computers		Control Panel\System	High
Banner03.gif	third_link.com	sports	www.nfl.com www.espn.com www.sports.com		Medium
:	:	:	:	:	:
:	:	:	:	:	:
BannerXX.gif	www.last_link.com\cgi\login	travel, entertainment			High

FIG. 7

FIG. 8

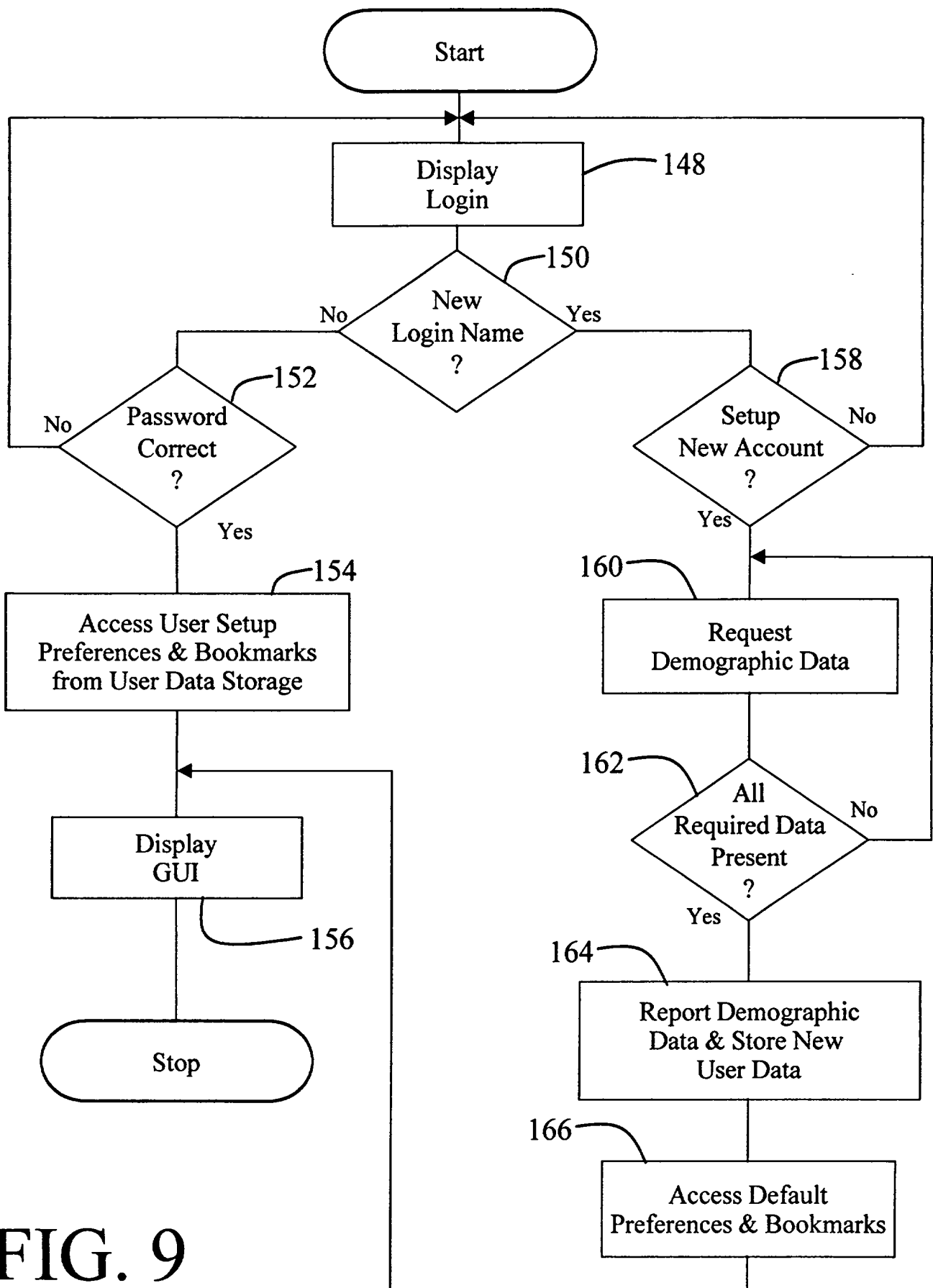


FIG. 9

FIG. 10

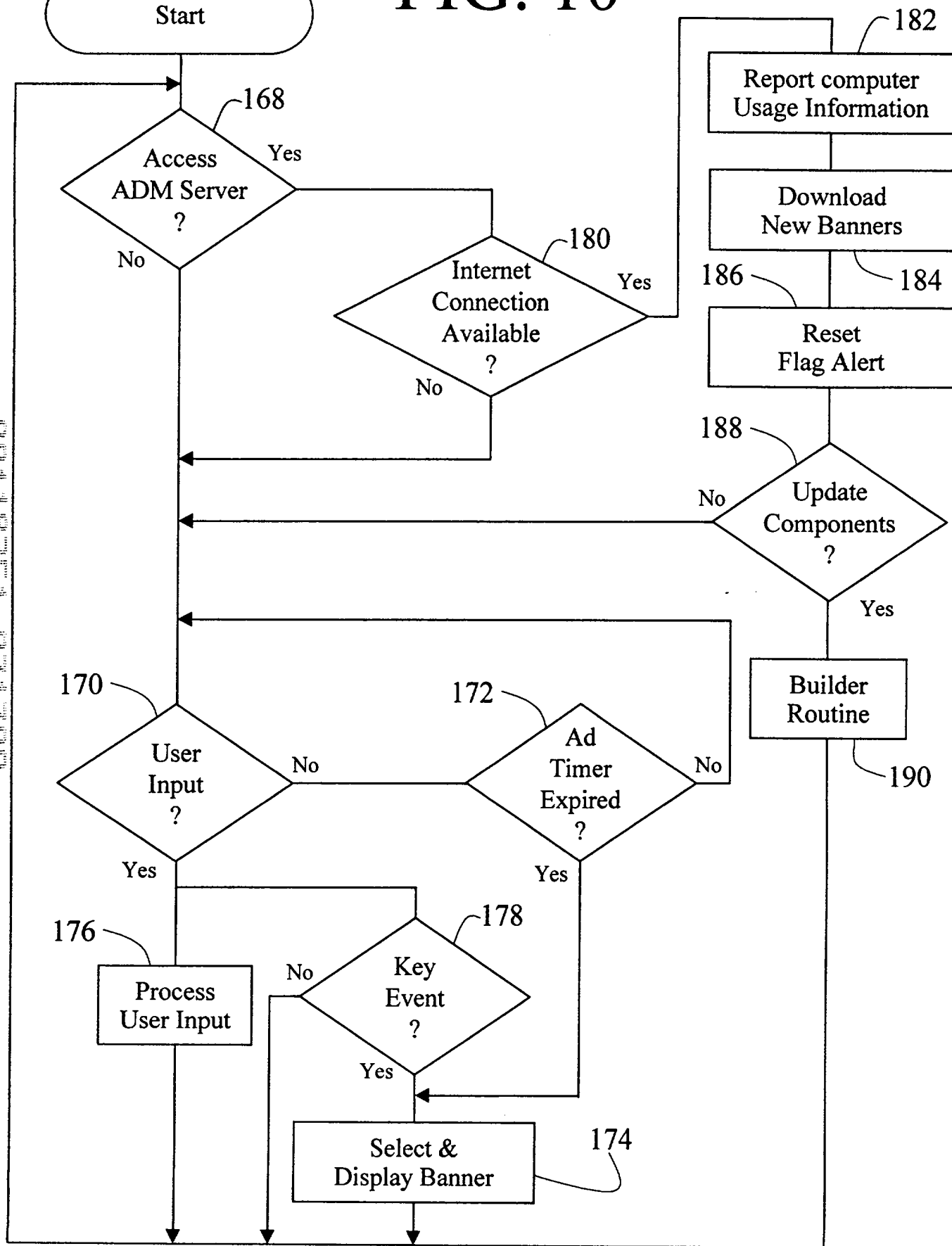
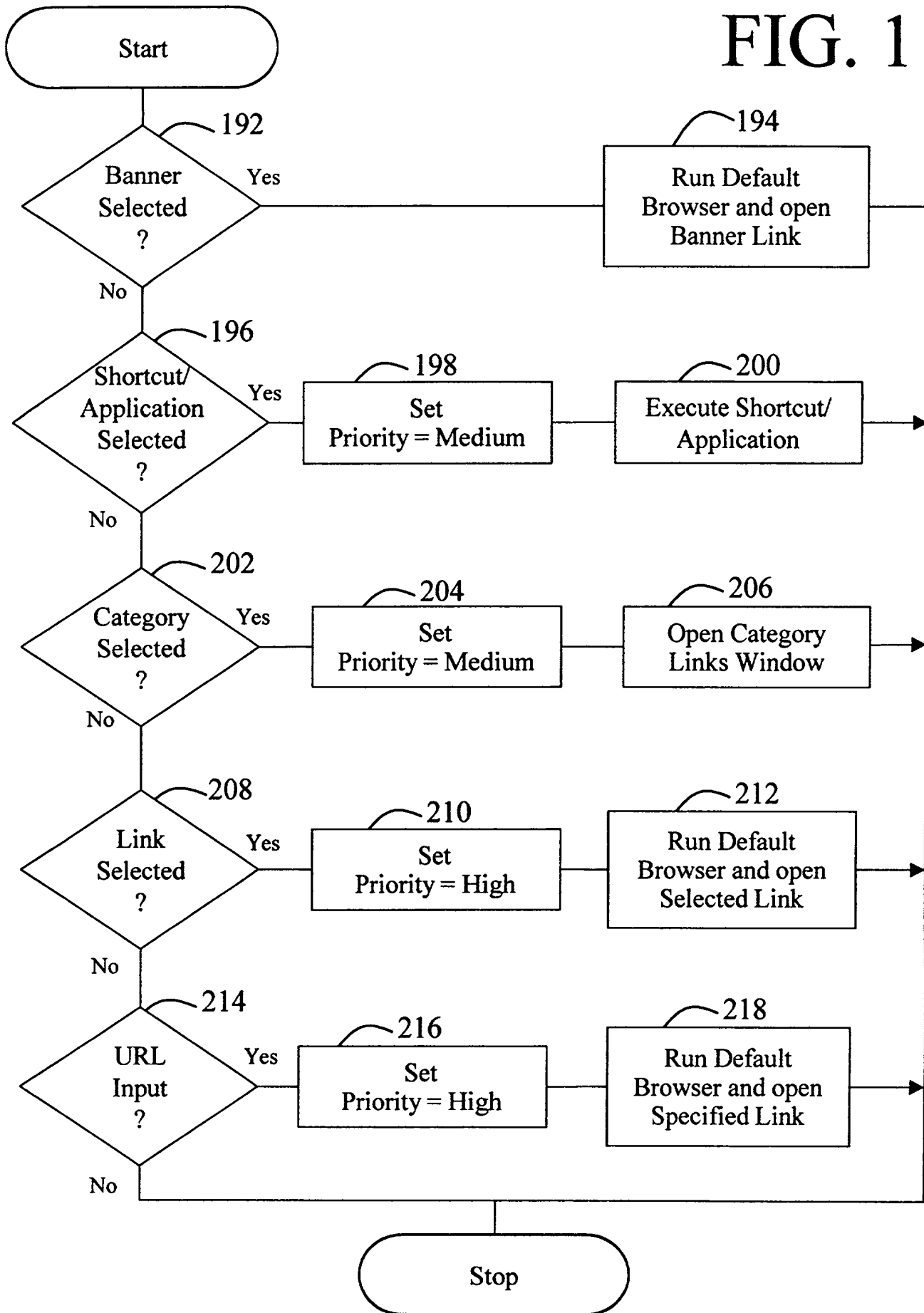


FIG. 11



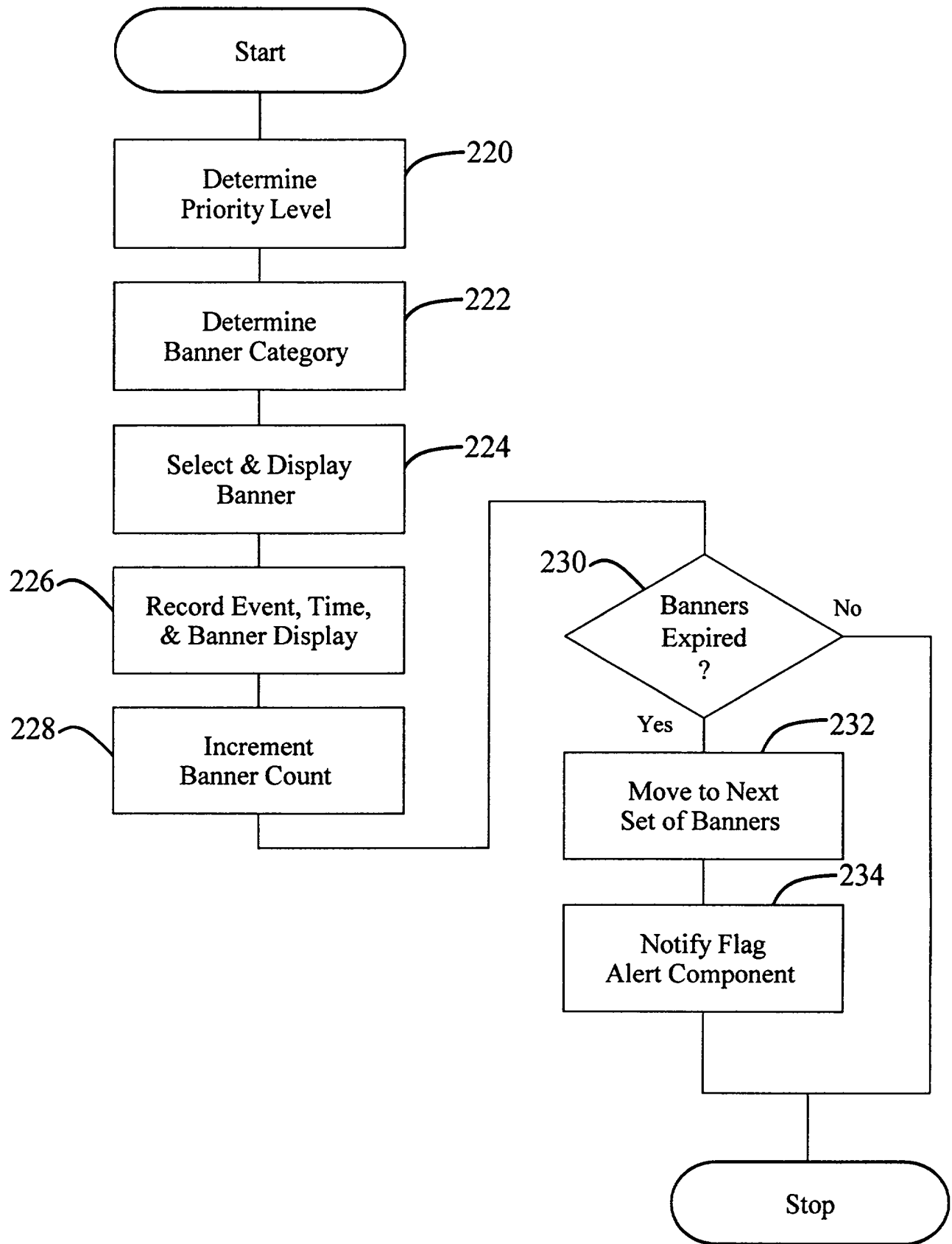


FIG. 12

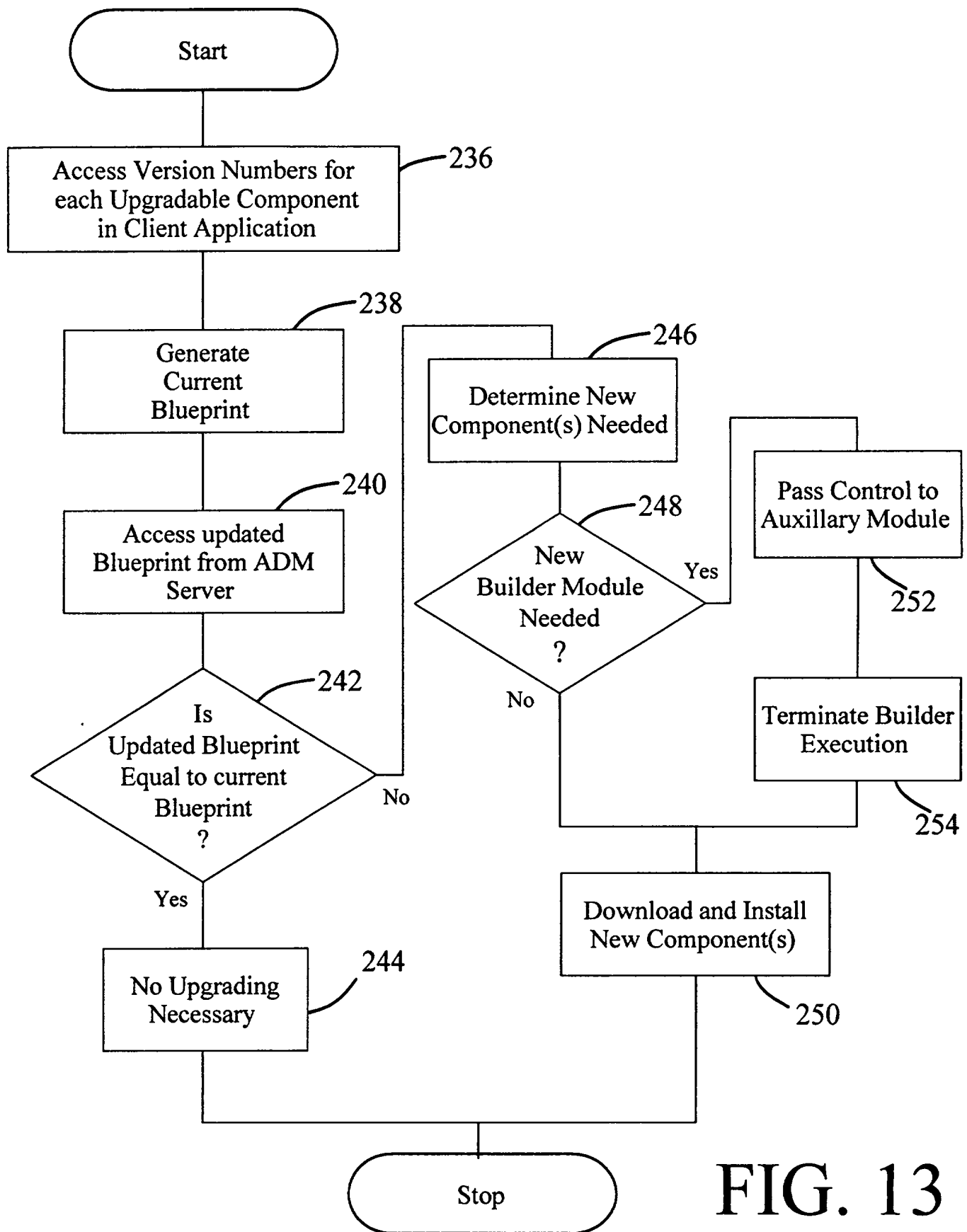
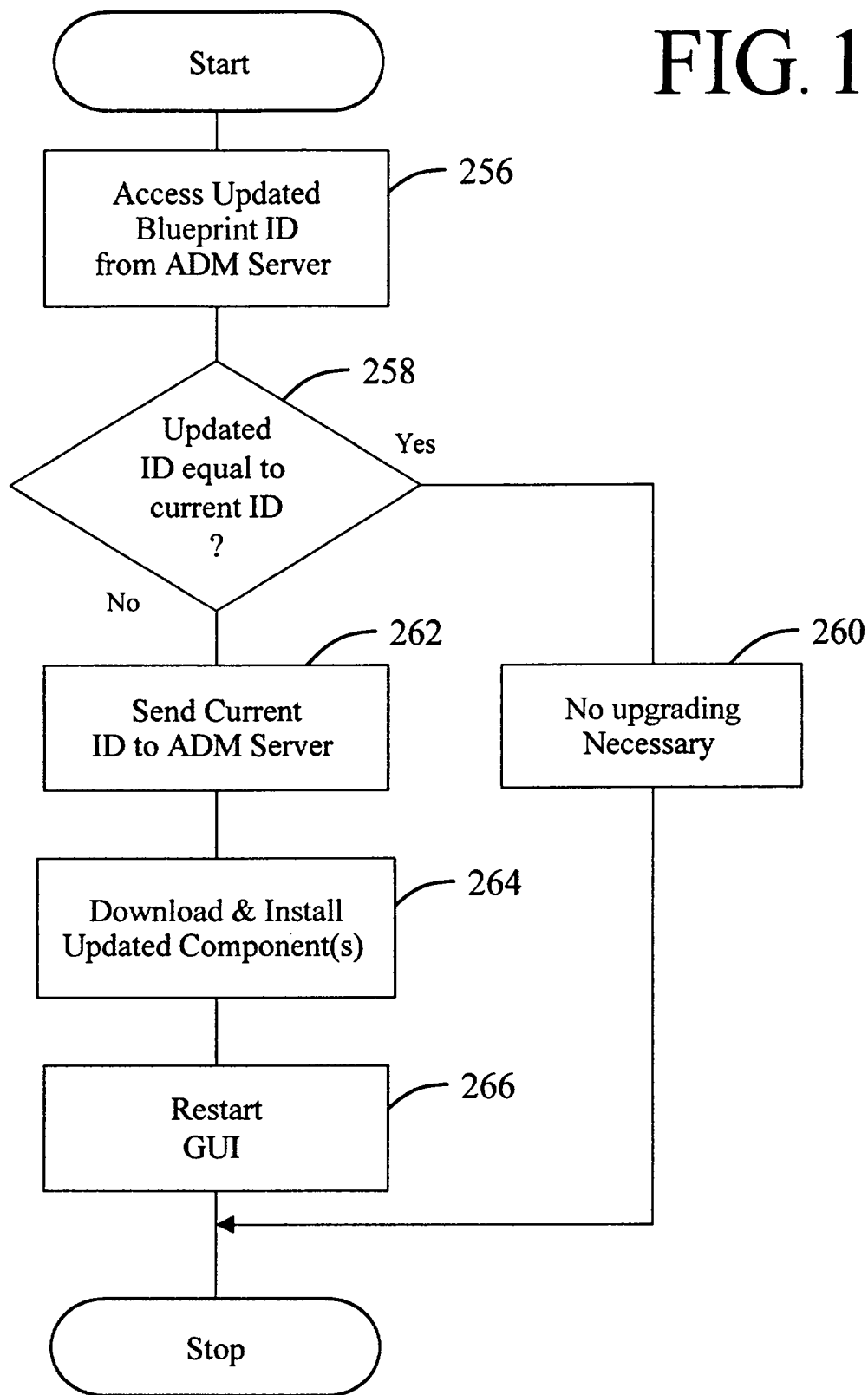


FIG. 13

FIG. 14



Practitioner's Docket No. P3001-1/L&M (McKinley)

PATENT

COMBINED DECLARATION AND POWER OF ATTORNEY

(ORIGINAL, DESIGN, NATIONAL STAGE OF PCT, SUPPLEMENTAL, DIVISIONAL,
CONTINUATION, OR C-I-P)

As a below named inventor, I hereby declare that:

TYPE OF DECLARATION

This declaration is of the following type:

(check one applicable item below)

- ☒ original.
☐ design.
☐ supplemental.

NOTE: If the declaration is for an International Application being filed as a divisional, continuation or continuation-in-part application, do not check next item; check appropriate one of last three items.

- ☐ national stage of PCT.

NOTE: If one of the following 3 items apply, then complete and also attach ADDED PAGES FOR DIVISIONAL, CONTINUATION OR C-I-P.

NOTE: See 37 C.F.R. § 1.63(d) (continued prosecution application) for use of a prior nonprovisional application declaration in the continuation or divisional application being filed on behalf of the same or fewer of the inventors named in the prior application.

- ☐ divisional.
☐ continuation.

NOTE: Where an application discloses and claims subject matter not disclosed in the prior application, or a continuation or divisional application names an inventor not named in the prior application, a continuation-in-part application must be filed under 37 C.F.R. § 1.53(b) (application filing requirements — nonprovisional application).

- ☐ continuation-in-part (C-I-P).

INVENTORSHIP IDENTIFICATION

WARNING: If the inventors are each not the inventors of all the claims, an explanation of the facts, including the ownership of all the claims at the time the last claimed invention was made, should be submitted.

My residence, post office address and citizenship are as stated below, next to my name. I believe that I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter that is claimed, and for which a patent is sought on the invention entitled:

TITLE OF INVENTION

A COMPUTER INTERFACE METHOD AND
APPARATUS WITH TARGETED ADVERTISING

SPECIFICATION IDENTIFICATION

the specification of which:

(complete (a), (b), or (c))

(a) ☒ is attached hereto.

NOTE: "The following combinations of information supplied in an oath or declaration filed on the application filing date with a specification are acceptable as minimums for identifying a specification and compliance with any one of the items below will be accepted as complying with the identification requirement of 37 CFR 1.63:

"(1) name of inventor(s), and reference to an attached specification which is both attached to the oath or declaration at the time of execution and submitted with the oath or declaration on filing;

"(2) name of inventor(s), and attorney docket number which was on the specification as filed;
or

"(3) name of inventor(s), and title which was on the specification as filed."

Notice of July 13, 1995 (1177 O.G. 60).

(b) ☐ was filed on _____, as ☐ Serial No. 0 / _____
or ☐ _____
and was amended on _____ (if applicable).

NOTE: Amendments filed after the original papers are deposited with the PTO that contain new matter are not accorded a filing date by being referred to in the declaration. Accordingly, the amendments involved are those filed with the application papers or, in the case of a supplemental declaration, are those amendments claiming matter not encompassed in the original statement of invention or claims. See 37 CFR 1.67.

NOTE: "The following combinations of information supplied in an oath or declaration filed after the filing date are acceptable as minimums for identifying a specification and compliance with any one of the items below will be accepted as complying with the identification requirement of 37 CFR 1.63:

"(1) name of inventor(s), and application number (consisting of the series code and the serial number; e.g., 08/123,456);

"(2) name of inventor(s), serial number and filing date;

"(3) name of inventor(s) and attorney docket number which was on the specification as filed;

"(4) name of inventor(s), title which was on the specification as filed and filing date;

"(5) name of inventor(s), title which was on the specification as filed and reference to an attached specification which is both attached to the oath or declaration at the time of execution and submitted with the oath or declaration; or

"(6) name of inventor(s), title which was on the specification as filed and accompanied by a cover letter accurately identifying the application for which it was intended by either the application number (consisting of the series code and the serial number; e.g., 08/123,456), or serial number and filing date. Absent any statement(s) to the contrary, it will be presumed that the application filed in the PTO is the application which the inventor(s) executed by signing the oath or declaration."

Notice of July 13, 1995 (1177 O.G. 60).

(c) ☐ was described and claimed in PCT International Application No. _____, filed on _____ and as amended under PCT Article 19 on _____ (if any).

(Declaration and Power of Attorney [1-1]—page 2 of 7)

SUPPLEMENTAL DECLARATION (37 C.F.R. § 1.67(b))

(complete the following where a supplemental declaration is being submitted)

- ☐ I hereby declare that the subject matter of the
- ☐ attached amendment
- ☐ amendment filed on _____

was part of my/our invention and was invented before the filing date of the original application, above-identified, for such invention.

ACKNOWLEDGEMENT OF REVIEW OF PAPERS AND DUTY OF CANDOR

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information, which is material to patentability as defined in 37, Code of Federal Regulations, § 1.56,

(also check the following items, if desired)

- ☒ and which is material to the examination of this application, namely, information where there is a substantial likelihood that a reasonable Examiner would consider it important in deciding whether to allow the application to issue as a patent, and
- ☐ in compliance with this duty, there is attached an information disclosure statement, in accordance with 37 CFR 1.98.

PRIORITY CLAIM (35 U.S.C. §§ 119(a)-(d))

NOTE: "The claim to priority need be in no special form and may be made by the attorney or agent if the foreign application is referred to in the oath or declaration as required by § 1.63. The claim for priority and the certified copy of the foreign application specified in 35 U.S.C. 119(b) must be filed in the case of an interference (§ 1.630), when necessary to overcome the date of a reference relied upon by the examiner, when specifically required by the examiner, and in all other situations, before the patent is granted. If the claim for priority or the certified copy of the foreign application is filed after the date the issue fee is paid, it must be accompanied by a petition requesting entry and by the fee set forth in § 1.17(i). If the certified copy is not in the English language, a translation need not be filed except in the case of interference; or when necessary to overcome the date of a reference relied upon by the examiner; or when specifically required by the examiner, in which event an English language translation must be filed together with a statement that the translation of the certified copy is accurate." 37 C.F.R. § 1.55(a).

I hereby claim foreign priority benefits under Title 35, United States Code, §§ 119(a)-(d) of any foreign application(s) for patent or inventor's certificate or of any PCT international application(s) designating at least one country other than the United States of America listed below and have also identified below any foreign application(s) for patent or inventor's certificate or any PCT international application(s) designating at least one country other than the United States of America filed by me on the same subject matter having a filing date before that of the application(s) of which priority is claimed.

(complete (d) or (e))

- (d) ☒ no such applications have been filed.
- (e) ☐ such applications have been filed as follows.

NOTE: Where item (c) is entered above and the International Application which designated the U.S. itself claimed priority check item (e), enter the details below and make the priority claim.

**PRIOR FOREIGN/PCT APPLICATION(S) FILED WITHIN 12 MONTHS
(6 MONTHS FOR DESIGN) PRIOR TO THIS APPLICATION
AND ANY PRIORITY CLAIMS UNDER 35 U.S.C. § 119(a)-(d)**

COUNTRY (OR INDICATE IF PCT)	APPLICATION NUMBER	DATE OF FILING (day, month, year)	PRIORITY CLAIMED UNDER 37 USC 119
			<input type="checkbox"/> YES NO <input type="checkbox"/>
			<input type="checkbox"/> YES NO <input type="checkbox"/>
			<input type="checkbox"/> YES NO <input type="checkbox"/>
			<input type="checkbox"/> YES NO <input type="checkbox"/>
			<input type="checkbox"/> YES NO <input type="checkbox"/>

CLAIM FOR BENEFIT OF PRIOR U.S. PROVISIONAL APPLICATION(S)
(34 U.S.C. § 119(e))

I hereby claim the benefit under Title 35, United States Code, § 119(e) of any United States provisional application(s) listed below:

PROVISIONAL APPLICATION NUMBER

FILING DATE

____ / _____
____ / _____
____ / _____

**CLAIM FOR BENEFIT OF EARLIER US/PCT APPLICATION(S)
UNDER 35 U.S.C. 120**

- ☐ The claim for the benefit of any such applications are set forth in the attached ADDED PAGES TO COMBINED DECLARATION AND POWER OF ATTORNEY FOR DIVISIONAL, CONTINUATION OR CONTINUATION-IN-PART (C-I-P) APPLICATION.

(Declaration and Power of Attorney [1-1]—page 4 of 7)

**ALL FOREIGN APPLICATION(S), IF ANY, FILED MORE THAN 12 MONTHS
(6 MONTHS FOR DESIGN) PRIOR TO THIS U.S. APPLICATION**

NOTE: If the application filed more than 12 months from the filing date of this application is a PCT filing forming the basis for this application entering the United States as (1) the national stage, or (2) a continuation, divisional, or continuation-in-part, then also complete ADDED PAGES TO COMBINED DECLARATION AND POWER OF ATTORNEY FOR DIVISIONAL, CONTINUATION OR C-I-P APPLICATION for benefit of the prior U.S. or PCT application(s) under 35 U.S.C. § 120.

POWER OF ATTORNEY

I hereby appoint the following practitioner(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.

E.J. Biskup	18,987	J.F. Learman	17,069
P.J. Ethington	17,299	J.K. McCulloch	17,452
J.C. Evans	20,124	J.P. Moran	20,941
R.L. Farris	25,112	S.L. Permut	28,388
F.J. Fodale	20,824	W.J. Schramm	24,795
A.M. Grove	39,697	R.L. Stearns	36,937
R.W. Hoffmann	33,711	J.D. Stevens	35,691
E.T. Jones	40,037	C.R. White	20,494

- ☐ I hereby appoint the practitioner(s) associated with the Customer Number provided below to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith.
- ☐ Attached, as part of this declaration and power of attorney, is the authorization of the above-named practitioner(s) to accept and follow instructions from my representative(s).

SEND CORRESPONDENCE TO

DIRECT TELEPHONE CALLS TO:
(Name and telephone number)

☒ **Address**

John K. McCulloch
James D. Stevens
Reising, Ethington, Learman
& McCulloch
5291 Colony Drive North
Saginaw, MI 48603

James D. Stevens
(248) 689-3500

John K. McCulloch
(517) 799-5300

☐ **Customer Number** _____

DECLARATION

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code; and that such willful false statements may jeopardize the validity of the application of any patent issued thereon.

SIGNATURE(S)

NOTE: Carefully indicate the family (or last) name, as it should appear on the filing receipt and all other documents.

Full name of sole or first inventor

Martin David Boyle
(GIVEN NAME) (MIDDLE INITIAL OR NAME) (FAMILY OR LAST NAME)

X Inventor's signature Martin David Boyle

Date 7-16-98 Country of Citizenship U.S.A.

Residence Destrehan, Louisiana 70047

Post Office Address 90 Carriage Lane, Apt. B 4923 22nd St
Destrehan, LA 70047 Metairie, La 70001

Full name of second joint inventor, if any

(GIVEN NAME) (MIDDLE INITIAL OR NAME) (FAMILY OR LAST NAME)

Inventor's signature _____

Date _____ Country of Citizenship _____

Residence _____

Post Office Address _____

Full name of third joint inventor, if any

(GIVEN NAME) (MIDDLE INITIAL OR NAME) (FAMILY OR LAST NAME)

Inventor's signature _____

Date _____ Country of Citizenship _____

Residence _____

Post Office Address _____

(Declaration and Power of Attorney (1-1) — page 6 of 7)

(check proper box(es) for any of the following added page(s)
that form a part of this declaration)

☐ **Signature** for fourth and subsequent joint inventors. *Number of pages added* _____

* * *

☐ **Signature** by administrator(trix), executor(trix) or legal representative for deceased or incapacitated inventor. *Number of pages added* _____

* * *

☐ **Signature** for inventor who refuses to sign or cannot be reached by person authorized under 37 CFR 1.47. *Number of pages added* _____

* * *

☐ Added page for **signature** by one joint inventor on behalf of deceased inventor(s) where legal representative cannot be appointed in time. (37 CFR 1.47)

* * *

☐ Added pages to combined declaration and power of attorney for divisional, continuation, or continuation-in-part (C-I-P) application.

☐ *Number of pages added* _____

* * *

☐ Authorization of practitioner(s) to accept and follow instructions from representative.

* * *

(if no further pages form a part of this Declaration,
then end this Declaration with this page and check the following item):

☒ This declaration ends with this page.

662720 7563460

STATEMENT CLAIMING SMALL ENTITY STATUS
(37 CFR 1.9(f) & 1.27(c))—SMALL BUSINESS CONCERN

Docket Number (Optional)
P3001-1/L&M (McKinley)

Applicant, Patentee, or Identifier: Martin David Hoyle

Application or Patent No.: _____

Filed or Issued: Herewith

Title: A COMPUTER INTERFACE METHOD AND APPARATUS WITH TARGETED ADVERTISING

I hereby state that I am

- ☐ the owner of the small business concern identified below;
☒ an official of the small business concern empowered to act on behalf of the concern identified below.

NAME OF SMALL BUSINESS CONCERN B.E. Technology, LLC

ADDRESS OF SMALL BUSINESS CONCERN 106 South Walnut Street
Bay City, Michigan 48706

I hereby state that the above identified small business concern qualifies as a small business concern as defined in 13 CFR Part 121 for purposes of paying reduced fees to the United States Patent and Trademark Office, in that the number of employees of the concern, including those of its affiliates, does not exceed 500 persons. For purposes of this statement, (1) the number of employees of the business concern is the average over the previous fiscal year of the concern of the persons employed on a full-time, part-time, or temporary basis during each of the pay periods of the fiscal year, and (2) concerns are affiliates of each other when either, directly or indirectly, one concern controls or has the power to control the other, or a third party or parties controls or has the power to control both.

I hereby state that rights under contract or law have been conveyed to and remain with the small business concern identified above with regard to the invention described in:

- ☒ the specification filed herewith with title as listed above.
☐ the application identified above.
☐ the patent identified above.

If the rights held by the above identified small business concern are not exclusive, each individual, concern, or organization having rights in the invention must file separate statements as to their status as small entities, and no rights to the invention are held by any person, other than the inventor, who would not qualify as an independent inventor under 37 CFR 1.8(c) if that person made the invention, or by any concern which would not qualify as a small business concern under 37 CFR 1.8(d), or a nonprofit organization under 37 CFR 1.8(e).

Each person, concern, or organization having any rights in the invention is listed below:

- ☒ no such person, concern, or organization exists.
☐ each such person, concern, or organization is listed below.

Separate statements are required from each named person, concern or organization having rights to the invention stating their status as small entities. (37 CFR 1.27)

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b))

NAME OF PERSON SIGNING Martin David Hoyle

TITLE OF PERSON IF OTHER THAN OWNER President

ADDRESS OF PERSON SIGNING 90 Carriage Lane, Unit B, Des Moines, IA 50347

SIGNATURE [Signature] DATE 7-16-98